

Herbal Remedies for Athletes:

A Handbook

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Stephanie J Troscinski, CAT(C), ATC is a Certified Athletic Therapist/Trainer and wrote this book as part of her Masters of Science in Complementary Alternative Medicine Thesis from American College of Healthcare Sciences. Her goal was to educate athletes on the safe use of herbal remedies.



This book is dedicated to my mother Linda Carson and my grand-mère Ida Carson. Who have always loved and supported me in all my endeavors. Without them this would not be possible. And to my four-legged best friend Snowy, thank you for all the late night cuddles and love.

Disclaimer

The information and references used in this handbook are intended solely for the general information of the reader about medical conditions, treatments and herbs. This information is not advice and should not be treated as such. The contents of this booklet are not intended to offer personal medical advice, diagnose health problems or for treatment purposes. Never delay seeking medical advice, disregard medical advice, or discontinue medical treatment because of information in this handbook. It is not a substitute for medical care provided by a licensed and qualified health care professional. Please consult one's health care provider for any advice on medications and herbal supplements.

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Arnica



Botanical Name: *Arnica montana*

Family: *Asteraceae*

Common Names/Synonyms: Arnica, Mountain tobacco, Arnica flower oil, leopard's bane,¹ European Arnica, Wolf's bane, Fleurs d'arnica, Arnikablüten, Bergwohlverleih, Wundkraut, Fallkraut, Kraftwurz, Engelkraut and Flor de arnica.²

Parts Used: Fresh or dried flower heads.²⁻³

Dosage and Administration: Use a warm wet Arnica compress or poultice applied to the injured area. *DO NOT* take Arnica by mouth unless it is in a homeopathic form.³

Infusion: 2 g Arnica per 100 ml of water.

Tincture: 5 - 10 drops, diluted in a little warm water.⁴

Tea: One cup of boiling water is poured onto 2 teaspoonful of Arnica flowers. Steep for 10 minutes, then strain. Use twice daily.⁴

Ointment: A maximum 20-25% of the tincture. Arnica Extract or herb forms 1 part drug to 5 parts fatty vegetable oil. Or use a maximum 15% Arnica Oil.²

Indications and Medicinal Uses: For external use of injuries, including, hematomas, contusions, sprains, muscle aches, joint pain, dislocations, inflammation from insect bites and swelling from broken bones.²⁻³ Homeopathic Arnica has been used for swelling and pain after arthroscopic knee surgery and studies show that it reduces swelling.⁵ It may be helpful in wound healing, the treatment of burns and superficial phlebitis.²⁻³ Arnica can help ease osteoarthritis and pain as well the pain caused by delayed-onset of muscle soreness (DOMS).⁶ Arnica can be used in inflammation of the oral and pharyngeal mucosa and furunculosis.² Orally, Arnica is also used for mouth and throat inflammation, pain, tooth extraction, superficial phlebitis, and as an abortifacient. Topically it is used for myalgia, chapped lips, and acne and anti-dandruff preparations.⁷

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Arnica, its constituents, or the Asteraceae or Compositae families. Sensitivity can occur in those

who are allergic to calendula, chamomile, chrysanthemum, dahlia, daisy, dandelion, dog fennel chicory, *Matricaria chamomilla*, mugwort, marigold, May weed, sunflower, tansy, and yarrow.⁶ Do not apply to broken, abraded skin or an open wound.³ **DO NOT** take Arnica by mouth unless it is in a homeopathic form.³ Arnica is safe for short term use; ingestion of Arnica can increase heartbeat, increase bleeding time and severe gastroenteritis. High doses of internal Arnica may cause muscle weakness, impaired urine flow, kidney and liver damage, collapse, coma and even death.⁶ Arnica may interfere with the following drugs: anesthetic drugs, hydroxyethyl salicylate, corticosteroids, anti-inflammatories, blood pressure lowering drugs, anticoagulants, and cholesterol lowering drugs.⁶ The following herbs may interact with Arnica: *Ginkgo biloba*, garlic, saw palmetto, daisy (*Bellis perennis*); those herbs used as anti-inflammatories and those used to lower blood pressure.⁶ Arnica is not recommended during pregnancy due to the potential for uterine stimulation and toxicity. It should be avoided when breastfeeding.⁶

Asian Ginseng



Botanical Name: *Panax ginseng*

Family: *Araliaceae*

Common Names/Synonyms: Asiatic ginseng, Chinese ginseng, ginseng Asiatique, ginseng radix, ginseng root, guigai, hongshen, Japanese ginseng, Jen-Shen, Jinsao, Insam, Korean ginseng, Koreana red ginseng, Ninjin, Oriental ginseng, radix ginseng Rubra, red ginseng, ren shen, renshen, renxian, sang, seng, sheng shai shen, and white ginseng.⁸ Chinese red ginseng, ginseng, Ginseng blanc, Ginseng blanc de Corée, Ginseng Chinols, Ginseng Coréen, Ginseng Coréen rouge, Ginseng de Corée, Ginseng Japonais, Ginseng radix alba, Ginseng root, Ginseng rouge, Ginseng Sino-coréen, Ginseng Tibétain, Guigai, Hong Shen, Jintsam, Korean Ginseng, Korean Ginseng Root, Korean Panax, Korean Panax Ginseng, Korean White Ginseng, Mandragore de

Chine, Ninjin, Ninzin, Panax Coréen, Panax Ginseng Blanc, Racine de Vie, Red Chinese Ginseng, Red Kirin Ginseng, Red Korean Ginseng, Red Panax Ginseng, Renshen, Renxian, Sheng Shai Shen, Tibetan Ginseng, White Panax Ginseng.⁹

Parts Used: The root.⁸

Dosage and Administration:

Dry Extract/Capsules: A standardized amount of ginsenosides is no more than 4%. Maximum amount is 80 mg to 240 mg of ginsenosides per day. Two 100 mg capsules taken daily with water at breakfast or 1 capsule at breakfast and 1 capsule at lunch.⁸

Decoction: 3 g to 9 g dried root simmered in 720 ml to 960 ml of water for approximately 45 minutes.⁸

Fluid Extract: 1:2 g/ml, 1 ml to 6 ml taken daily.⁸

Infusion: 150 ml to 250 ml of boiling water poured over 1 g to 2 g of fine-cut powdered root, steeped covered for 10 minutes, and then strained.⁸

Power: 2 g to 3 g of dried, powdered root, daily for up to 3 months.⁸

Indications and Medicinal Uses: Panax ginseng is an adaptogen, it is used to increase resistance to environmental stress and as a

general tonic for improving well-being. It is an immune stimulant, it improves physical and athletic stamina and lack of energy. It improves cognitive function, concentration, memory and work efficiency.⁸ It helps facilitate the recovery from exhaustive exercise.¹⁰ Panax ginseng can be used for depression, anxiety, chronic bronchitis, irritated and inflamed tissues and as a diuretic. It has been used orally for anemia, diabetes, gastritis, fever, and asthma.⁸ Other conditions that it has been used for include: loss of appetite, bleeding disorders, vomiting, colitis, dysentery, cancer, insomnia, rheumatism, headaches, dizziness, and to help slow down the aging process.⁸

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Panax Ginseng or its constituents. It may decrease blood coagulation so it is contraindicated in blood disorders such as hemorrhaging or thrombosis, it may also decrease platelet aggregation and should not be taken with warfarin (Coumadin), heparin, aspirin, cilostazol (Pletal), clopidogrel (Plavix), dalteparin (Fragmin), enoxaparin (Lovenox), and ticlopidine (Ticlid).⁸⁻⁹ Care is to be taken in those with cardiac disorders and schizophrenia. Panax ginseng may have hypoglycemic activity so care should be given in those with diabetes. As well it may have an estrogenic effect and anyone with hormone sensitive conditions such as endometriosis, uterine fibroids, breast cancer, uterine cancer, and ovarian cancer should

avoid its use. At high doses it may cause insomnia.⁸ Do not take with alcohol, caffeine or other stimulate drugs.⁹ Do not give to infants and children; and do not use while pregnant or breast feeding as it has teratogenic effects.⁹

Calendula



Botanical Name: *Calendula officinalis/Calendula officinalis L.*

Family: *Asteraceae/Compositae*

Common Names/Synonyms: Caléndula, Calendule, English Garden Marigold, Fleur de Calendule, Fleur de Tous les Mois, Garden Marigold, Gold-Bloom, Holligold, Marigold, Marybud, Pot Marigold, Souci des Champs, Souci des Jardins, Souci des Vignes, Souci Officinal, and Zergul.¹¹ Golden Marigold, Marybud, Fleur de souci, Flor de calendula, Flor de maravilla, Ringelblumen, Gartenringelblume, Goldblume, and Studentenblume.²

Parts Used: Whole or partially broken-up flowerheads.²

Dosage and Administration:

Topical-Compress: Use 1:1 tincture in 40% alcohol or 1:5 tincture in 90% alcohol that is diluted to at least 1:3 with freshly boiled water for compresses. Apply 3 - 4 times daily.¹¹

Tincture: 1 tsp to 2 tsp (2 to 4 ml) tincture per ¼ to ½ L of water.²

Tincture-Nosebleeds: Use 1:1 tincture in 40% alcohol or 1:5 tincture in 90% alcohol that is diluted to at least 1:3 with freshly boiled water to soak a nose plug or rolled sterile gauze and insert up the nose.

Essential Oil for Ear Infection: 5 drops in affected ear 3x/day.

Can make a solution of: equal parts Garlic (*Allium sativum*), Mullein (*Verbascum thapsus*), Calendula (*Calendula officinalis*), St. John's Wort (*Hypericum perforatum*), Lavender (*Lavandula angustifolia*), vitamin E oil and mix into olive oil. 5 drops in the affected ear 3x/day.⁶

Tea: 1 g to 2 g of dried flowers per 1 c (150 ml) of water.²

Ointment: 2 g to 5 g dried flowers in 100 g ointment, applied 3 – 4 times a day.^{2,6}

Indications and Medicinal Uses: It has anti-inflammatory, anti-edema effects and it promotes the formation of granulation tissue

in wound healing.² Externally Calendula is used for inflammation of the skin, mucous and pharyngeal membranes, for poorly healing wounds, bruises, furuncles, pharyngitis, dermatitis, and leg ulcers.^{2,11} It can be used topically for nosebleeds, varicose veins, hemorrhoids, and conjunctivitis.¹¹ The essential oil has antibacterial, antiviral, and antifungal effects. It can be used with Aloe Vera topically to significantly increase the speed of wound healing. In-vitro studies have shown potential anti-HIV activity.² Internally it is an antiphlogistic and anti-spasmodic in the treatment of gastritis, cystitis, cholecystitis, cholangitis, and gastrointestinal spasms.^{2,11} It can also be used to initiate menstrual periods, for dysmenorrhea, to reduce fever, and possibly to treat cancer as an immune-stimulator.¹¹ Calendula has been used to reduce the pain of ear infections by having mild anesthetic effects.⁶

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Calendula, its constituents, the Aster or Compositae family such as ragweed, chrysanthemums, marigolds and daises.⁶ Calendula should not be used during pregnancy due to spermicide, antiproliferative, and abortifacient effects when taken orally. There is insufficient data about topical use during pregnancy and insufficient data about oral and topical use during lactation therefore it is not recommended.¹¹ In animal studies Calendula at high doses was seen to lower blood pressure, led to hepatotoxicity and renal overload. Do not use in those with

blood pressure issues. As well it had a hypoglycemic effect, reduces blood glucose, and was a mild ocular irritant.¹¹ Calendula may theoretically interact with CNS depressant drugs that have sedative properties and might cause additive therapeutic and adverse effects. Caution is advised when taking sedative herbs and supplements such as: calamus, California poppy, catnip, hops, Jamaican dogwood, kava, L-tryptphan, melatonin, sage, SAMe, St. John's wort, saffrafras, and skullcap.¹¹ Discontinue taking this herb 2 weeks prior to any surgery.

Coconut Water



Botanical Name: *Cocos nucifera* **Family:** *Areaceae/Palmae*

Common Names/Synonyms: Agua de Coco, Asian Coconut Water, Coconut Drink, Coconut Fruit Water, Coconut H₂O, Coconut Juice, Coconut Palm Water, Coconut Rehydration Solution, Eau de Coco, Eau de Coco Verte, Eau de Jeune Coco, Eau de Jeunes Noix de Coco, Eau de Noix de Coco d'Asie, Eau du Fruit du Cocotier, Fresh Young Coconut Water, Green Coconut Water, Kabuaro Water, Young Coconut Water.¹²

Parts Used: The clear watery liquid is found inside immature coconuts. Immature coconuts contain 500-1000 ml of fluid.¹²

Dosage and Administration:

Hypertension Oral: 300 ml 2x/day.¹²

Exercise-Induced Dehydration Oral: Equivalent to 120% of estimated bodily fluid loss, consumed over a period of 1 hr following exercise.¹² Weigh in before and after exercising. For

every pound lost, drink 16 - 20 oz of fluids, water and coconut water.¹³

Intravenous Hydration: 1200 ml daily.¹²

Coconut Water and Chia Seeds: Add Chia seeds to glass of coconut water. Chia seeds are an incredible energy food, full of omega 3 fatty acids, protein, and fiber. These seeds have the ability to avoid dehydrated because of they can hold 9 times their weight in water.¹⁴

Indications and Medicinal Uses: Coconut Water is used orally for dehydration following athletic activity or illness such as diarrhea. It can be used intravenously as a hydrating fluid as well.¹² It may be used for hypertension, preliminary clinical research shows that drinking coconut water can lower systolic and diastolic blood pressure in people with hypertension.¹²

The following is a breakdown of Coconut Waters Nutrient Content:

Inorganic Ions¹⁵

Calcium, Ca	24mg/100g
Iron, Fe	0.01-0.29 mg/100g
Magnesium, Mg	25-30 mg/100g
Phosphorus, P	20-37 mg/100g

Potassium, K	250-312 mg/100g
Sodium, Na	105 mg/100g
Zinc, Zn	0.1 mg/100g
Copper, Cu	0.04 mg/100g
Manganese, Mn	0.142 mg/100g
Chloride, Cl	183 mg/100g
Sulfur, S	24 mg/100g
<u>Proximates</u> ¹⁵	
Water	94.99 g/100g
Total Dietary Fiber	1.1 g/100g
Energy Value	19 kcal/79 kJ
Protein	0.72 g/100g
Total lipids/fat	0.2 g/100g
<u>Sugars</u> ¹⁵	
Glucose	7.25 mg/ml
Sucrose	9.18 mg/ml
Fructose	5.25 mg/ml

Vitamins¹⁵

Vitamin C/Ascorbic Acid	2.4 mg/100g
Thiamin (B1)	0.03 mg/100g
Riboflavin (B2)	0.57 mg/100g
Niacin (B3)	0.08 mg/100g
Pantothenic Acid (B5)	0.043-0.52 mg/100g
Pyridoxine (B6)	0.032 mg/100g
Folate Acid/total	0.03 mg/100g
Biotin	0.02 mg/100g
Niacin/Nicotinic Acid	0.64 mg/100g

Contradictions and Cautions: Drinking Coconut Water is well tolerated, with no significant side effects reported. Caution is advised if taking Coconut Water to lower blood pressure while taking antihypertensive drugs, theoretically this combination may increase the risk of hypotension.¹² As well taking it with other blood pressure lower herbs and supplements such as andrographis, casein peptides, cat's claw, coenzyme Q-10, fish oil, L-arginine, lyceum, stinging nettle, theanine, etc., may increase of hypotensive effects.¹² Coconut Water is high in potassium and may cause complications with hyperkalemia and renal insufficiency.¹²

Cola Nut



Botanical Name: *Cola acuminata*, *Sterculia acuminata*, *Cola nitida*, *Sterculia nitida*

Family: *Sterculiaceae* or *Malvaceae*

Common Names/Synonyms: Arbre à Cola, Arbre à Kola, Bissey Nut, Guru Nut, Gworo, Kola Nut, Kolatier, Noix de Cola, Noix de Gourou, Noix de Kola, Noix du Kolatier, Noix de Soudan, Noix du Soudan, Nuez de Cola, and Soudan Coffee.¹⁶ Kola, Kolasamen, Colasamen, Kolanuss, Gurunuss, and Semilla de Cola.²

Parts Used: The seeds.²

Dosage and Administration: Taken as a daily dose unless otherwise stated.

Extract: 0.25 g - 0.75 g^{2, 16}

Liquid Extract: 2.5 g - 7.5 g^{2, 16}

Seed: 2.0 g - 6.0 g²

Powder: As dried seed, 1 g - 3 g as a decoction, liquid extract, or tincture. A decoction should be made by boiling 1 tsp - 3 tsp in 1 cup of water and taken 3 x/day. The liquid extract is at a 1:1 solution of 60% alcohol and Cola nut and should be taken 3 x/day. The tincture is in a 1:5 solution of 60% alcohol along with 1 ml - 4 ml of cotyledons 3 x/day.¹⁶

Tincture: 10.0 g - 30.0 g^{2, 16}

Wine: 60.0 g - 180.0 g²

Indications and Medicinal Uses: Cola nut has been used orally for short-term relief of mental and physical fatigue and depressive states, especially those associated with general muscle weakness.^{2, 16} It is also used orally for chronic fatigue syndrome (CFS), melancholy, lack of muscle tone, exhaustion, dysentery, diarrhea, weight loss, and migraines.¹⁶ The effects depend upon the caffeine content of the Cola nut and corresponds to daily caffeine dosages of 40-150 mg.² Studies have shown that caffeine doses of 4 mg/kg, can increase mental alertness and improve logical reasoning, free recall, and recognition memory tasks.¹⁷ It can also, help increase time to exhaustion in endurance exercise bouts, decrease ratings of

perceived exertion during submaximal endurance exercise, and improve physical performance during periods of sleep deprivation.¹⁷ Caffeine helps in the recovery of muscles and may help reduce Delayed on Set of Muscle Soreness (DOMS).¹⁷ Ingestion large quantity of caffeine, 8 mg/kg body weight, with carbohydrates, 4 g/kg body weight, after carbohydrate-depleting endurance exercise can lead to significantly greater glycogen re-synthesis than the ingestion of carbohydrate alone.¹⁷ Cola nut is also used as a flavouring ingredient in foods and beverages.^{2, 16}

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Cola Nut or its constituents.

Significant overdose can cause irritability, anxiety, nervousness, tremors, sleep disturbances or insomnia, and stomach complaints or gastrointestinal issues.^{2, 16} Cola nut is possibly safe when used appropriately for short-term oral use for up to 12 weeks. Likely unsafe when used orally in very high doses due to its caffeine content.¹⁶ The fatal acute oral dose of caffeine is estimated to be 10-14 grams or 150-200 mg per kilogram. *The NCAA bans caffeine levels of 15 µg/ml in the urine which is the equivalent of ingesting 500 mg of caffeine within a few hours of being tested.*¹⁸ *The International Olympic Committee (IOC) and World Anti-Doping Agency allows 12 µg/ml in the urine which is equivalent to ingesting 8 cups of espresso.*¹⁸ Due to the caffeine content intake should be closely monitored in pregnant and breastfeeding woman

due to potential harm to the baby.¹⁶ High dosages may cause increased blood pressure.¹⁶ Since Cola nut contains caffeine it should not be combined with drugs like Adenosine (Adenocard), alcohol, Amphetamines, Cimetidine (Tagamet), Clozapine (Clozaril), Cocaine, Dipyridamole (Persantine), Disulfiram (Antabuse), Ephedrine, Mexiletine (Mexitol), Monoamine Oxidase Inhibitors (MAOIs), nicotine, Phenylpropanolamine, Quinolone antibiotics, Riluzole (Rilutek), stimulant drugs, and Theophylline.¹⁶ Caution should be used with anticoagulant and antiplatelet drugs and herbs such as angelica, clove, danshen, garlic, ginger, ginkgo, and Panax ginseng, as the caffeine in Cola nut might increase the risk of bleeding.¹⁶ Caution should be used with antidiabetic drugs as in theory Cola nut might interfere with blood glucose control. The caffeine in Cola nut can increase calcium and magnesium excretion and increase urine creatine levels.¹⁶ Cola nut taken with Bitter orange which also contains caffeine can increase blood pressure and heart rate and cause serious cardiovascular effects use with caution.¹⁶ Use with caution with other caffeine containing foods and herbs such as black tea, coffee, green tea, oolong tea, cocoa, guaran and mate. Caffeine and Ephedra (*Ma huang*) may increase the risk of serious life-threatening or debilitating effects such as myocardial infarction, stroke, seizures, death, and hypertension, **DO NOT** use caffeine and ephedra or/and other stimulants together!¹⁶

Comfrey



Botanical Name: *Symphytum officinale*

Family: *Boraginaceae*

Common Names/Synonyms: Healing-herb, Knitbone, bruisewort, black root and Common Comfrey.^{2, 19} Racine de consoude, Beinwellwurzel, Wallwurz, Waldwurz, Schwarzwurz, Radix Consolidae, Raiz de consuelda, Raiz de consuelda mayor.²

Parts Used: The roots are the most powerful, but the rhizomes and the leaves may also be used.²

Dosage and Administration: Cold extract, decoction, fluid extract, infusion, powder, and tincture.¹⁹ Comfrey should be for topical use *ONLY*.

Cold Extract: 2 Tbsp - 4 Tbsp¹⁹

Decoctions: 2 Tbsp - 4 Tbsp

Fluid Extract: 2 ml - 4 ml¹⁹

Infusion: 4 Tbsp - 8 Tbsp¹⁹

Powder: 1 Tbsp¹⁹

Tincture: 4 ml - 6 ml¹⁹

Herb/Ointments: Ointments for external use should contain 5-20% of the dried root and duration of use should be no longer than 4-6 weeks per year. Adult dose is 3-4 times a day.¹⁹

Indications and Medicinal Uses: Several of the constituents in Comfrey are responsible for its anti-inflammatory effects which are found mostly in the roots.^{2, 19} It can be used for pain and inflammation of joints, arthritic swelling, sprains and muscle injuries, contusions and hematomas. Myalgia, irritations of the periosteum, tendonovaginitis, thrombophlebitis, mastitis, parotitis, glandular swelling, epicondylitis, arthritic dislocations, and to promote callus formations in bone fractures.^{2,6} Clinical evidence shows Comfrey provides benefit for ankle distortion, back pain, abrasion wounds and osteoarthritis as well topical application of Comfrey appears to be safe.²⁰ The tannins in Comfrey provide antiseptic and astringent effects which help with wound healing as well as the absorption of toxins and harmful bacteria in the body.¹⁹ Comfrey is a mucilaginous, a demulcent, an expectorant and a mild antimuscarinic herb. It has antiseptic, astringent, cell proliferant, diuretic, emollient, febrifuge, laxative, nutritive, sedative, and tonic properties.¹⁹ Comfrey should be for topical use *ONLY*.

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Comfrey or its constituents. Do not

apply to broken, abraded skin or an open wound.¹⁹ The maximum daily dose applied to the skin should not exceed 100 mcg pyrrolizidine alkaloids over 4 to 6 weeks of daily use.^{2, 6, 19} *DO NOT* use Comfrey orally due to pyrrolizidine alkaloids which may cause hepatotoxic, liver damage, and can be carcinogenic. Avoid topical use is those who are at risk of hepatic disorders, cancer, or immune disorders.⁶ Use topical creams cautiously in those taking anti-inflammatory medications. Avoid Comfrey during pregnancy and breastfeeding due to hepatotoxic and the fact the Comfrey can be excreted in human breast milk.⁶ Taking Comfrey by mouth may increase the activity of the following: hepatic enzyme, aminopyrine, N-demethylase, anti-inflammatory medications, chemotherapeutic agents, CYP3A4, cytochrome P450 3A4-inducing agents, hepatotoxic medications.⁶ Comfrey may interact with the following herbs so caution is advised when taking these: oral licorice, *Ginkgo biloba*, kava, pokeweed (*Phytolacca americana*), alkanna, borage, butterbur, coltsfoot, forget-me-not, gravel root, hemp agrimony, hound's tongue, lungwort, *Senecio* species, Rosemary (*Rosmarinus officinalis L.*), sassafras (*Sassafras albidum Nutt.*), chamomile (*Matricaria chamomile L.*), pot marigold calendula (*Calendula officinalis L.*), cockscomb (*Celosia cristata L.*), plantain (*Plantago lanceolata L.* and *Plantago major L.*), shepherd's purse (*Capsella bursapastoris L.*), and St John's wort (*Hypericum perforatum L.*).⁶

Homemade Electrolyte Replacement Recipes

Herbal Electrolyte Drink: This herbal tea can be drunk hot or cold. Sweeten as desired. 1 part Stinging nettles (*Urtica dioica*); 1 part Oatstraw (*Avena sativa*); 1 part Red clover (*Trifolium pratense*); 1 part Alfalfa (*Medicago sativa*); 1 part Rose hips (*Rosa spp.*).²¹ Mix all the dry herbs together in a closed container, store away from light and heat. When ready to use, put 1 ounce of the dried herb mix, in a clean quart canning jar. Fill the jar with boiling water and cover with a lid. After steeping for 4 hours, strain out the herbs. The infusion will last about 3 days in the refrigerator.²¹ This tea contains: antioxidants such as vitamin E, carotenes, and selenium, which have been shown to slow aging. B vitamins, which support the functioning of the liver and nervous system. Calcium, magnesium, iron, zinc, chromium, potassium, silica, and other trace minerals. Calcium and magnesium help build healthy bones, ease muscle spasms and cramping, and reduce inflammation. Zinc enhances immune system functioning, while chromium helps regulate blood-sugar levels. Another benefit of drinking this herbal infusion is healthy, beautiful hair and nails, due to the high mineral content.²¹

Homemade Pedialyte: 1 qt boiled water; 3 tbsp orange juice; 1 tsp salt; and 2 tbsp corn syrup. Mix ingredients together and chill. This drink contains sodium, potassium, chloride, magnesium and other ions.²²

Recipe #1: 1 qt water; 1 cup orange juice (fresh squeezed is best); 1 tsp table salt; 1 tsp baking soda; and 4 tbsp sugar. Mix ingredients together and chill.²²

Recipe #2: The juice of 1 celery stock, 1 apple and 1 lemon. The celery is a natural source of sodium, potassium, magnesium, chloride, and phosphorus. The apple provides additional potassium and natural sweetness. The lemon is the highest electrolyte containing citrus fruit.¹⁴

Recipe #3: Add to 1 qt water, 1 tsp of sea salt, 1 tsp of baking soda, 1 lemon squeezed and 2 tbsp of maple syrup. The maple syrup provides carbohydrates, the lemon juice is an excellent electrolyte and the sea salt provides sodium. Baking soda makes the body less acidic and provides an additional source of sodium bicarbonate.¹⁴

Recipe #4: Add Chia seeds to glass of coconut water. Chia seeds are an incredible energy food, full of omega 3 fatty acids, protein, fiber. These seeds have the ability to avoid dehydrated because of they can hold 9 times their weight in water.¹⁴

Recipe #5: Dissolve 2 tbsp of honey in 1 cup of warm filtered water. Add a 1/4 tsp of salt and stir to dissolve. Squeeze the juice from half an orange or grapefruit into the honey-and-salt solution. Pour enough filtered water in the container to fill to 1 L.²³

Smoothie: Make a smoothie with a frozen banana, 1 cup of almond milk and a handful of kale. The banana provides a good source of potassium and magnesium which help regulate fluid stores. Almonds are extremely rich in magnesium and potassium. When making almond milk, make sure to add sea salt, store bought almond milk already has salt added to it. The kale is a superfood and another excellent source of magnesium and calcium.

Sources-Food: Chloride sources: olives, seaweed, rye, tomatoes, lettuce and celery. Potassium rich sources: fresh or dried fruits like oranges, melons, raisins, prunes or bananas. Other sources are baked and sweet potatoes, green leafy vegetables such as kale and spinach, peas, beans and avocado. Calcium sources: milk (cow, soy, almond, or coconut), low fat cheese and yogurt. As well as magnesium sources: leafy green vegetables, whole grains, nuts, peanut butter, dried beans, and lentils.²⁴

Honey



Botanical Name: *Apis mellifera* (the honey bee) **Family:** *Apidae*

Common Names/Synonyms: Buckwheat Honey, Chestnut Honey, Clarified Honey, Honig, Jellybush Honey, Madhu, Manuka Honey, Mel, Miel, Miel Blanc, Miel Clarifié, Miel de Châtaignier, Miel de Manuka, Miel de Sarrasin, Miel Filtré, Purified Honey, Raw Honey and Strained Honey.²⁵

Parts Used: Honey is a sweet, viscid fluid produced by honeybees (*Apis mellifera*) from the nectar of flowers.²⁵

Dosage and Administration:

Homemade Honey Electrolyte Replacement Drink: Dissolve 2 tbsp of honey in 1 cup of warm filtered water. Add a 1/4 tsp of salt and stir to dissolve. Squeeze the juice from 1/2 an orange or

grapefruit into the honey-and-salt solution. Pour enough filtered water in the container to fill to 1 liter.²³

Exercise Performance: 8.8 ml/kg of a honey water drink, containing 110 mg sodium per 240 ml, consume 30 minutes prior to exercise and at halftime.²⁵

Burns: A dressing made from gauze impregnated with honey. The dressings can be left in place for up to 25 days, with wound inspection and changing every day. Or applied directly using 15-30 mL of honey applied 1 to 2 times daily, and covered with a dry sterile gauze and bandage until wounds completely healed.²⁵

Wounds: 20 mL of honey (25-30 g) on an impregnated absorbent dressing pad or sterile gauze. Dressing may need to stay in place for up to 28 weeks and should be changed every day until complete healing has occurred. Honey may be used daily to cleanse wounds.²⁵

Cough: 2.5ml to 10 ml (0.5 to 2 teaspoons) at bedtime to decrease frequency and severity of cough.²⁵

Allergies: 2 teaspoons of local honey per day.²⁶

Indications and Medicinal Uses: The Homemade Honey Electrolyte Replacement Drink will provide carbohydrates to replace those lost during exercise.²³ There are 17 grams of carbohydrates per tablespoon and 64 calories per tablespoon of

honey. Salt helps to maintain the fluid balance inside and outside of the cells.²⁷ When dissolved in water, salt disassociates into a positively charged sodium ion and a negatively charged chloride ion. Orange juice and grapefruit juice contain high levels of potassium.²³ Honey has many uses it is known to soothe coughs, may relieve seasonal allergies, allergic rhinitis and asthma, help with diarrhea and gastric ulcers, boost memory, treat wounds due to its antibacterial effects, treat burns and sunburns, provide nutrients, potentially prevent low white blood cell count, kill antibiotic-resistant bacteria like Methicillin-resistant *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *E. coli* and *salmonella*, and help with scalp problems such as dandruff.^{25, 27} Honey has been used to heal various types of wounds, including post-surgical wounds, chronic leg ulcers, abscesses, burns, abrasions, lacerations, and skin graft donor sites.²⁵ Honey improve granulation and epithelialization, reduce odors and purulent exudate, and help cleanse wounds, increase eradication of infection, reduce pain, and decrease time to healing.²⁵ Honey is often used as a sweetener for food.²⁵

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to honey or its constituents. **DO NOT** give honey to babies and young children under the age of 12 months due to the risk of botulism.^{6, 25} Pregnant and breastfeeding woman should not take honey due to botulism concerns.⁶ In

general, honey is well tolerated in safe in the recommended doses.²⁵ Caution should be taken if using honey with other antibiotics as it may cause an additive effect.⁶ Care should be advised in those taking anticoagulant and antiplatelet drugs as honey may inhibit platelet aggregation and increase clotting time. Caution is advised when taking aspirin; clopidogrel (Plavix); nonsteroidal anti-inflammatory drugs (NSAIDs) such as diclofenac (Voltaren, Cataflam), ibuprofen (Advil, Motrin), naproxen (Anaprox, Naprosyn); dalteparin (Fragmin); enoxaparin (Lovenox); heparin; or warfarin (Coumadin).²⁵ As well with the following anticoagulant and antiplatelet herbs: angelica, clove, danshen, garlic, ginger, ginkgo, glucosamine, and Panax ginseng.²⁵ Since honey is composed of sugars it can increase blood sugar levels and caution is advised in those taking antidiabetic medications.⁶

Lavender



Botanical Name: *Lavandula angustifolia*

Family: *Lamiaceae* (formerly *Labiatae*)

Common Names: Common Lavender, English Lavender, garden Lavender, true Lavender, pink Lavender, white Lavender, limonene, linalool, linalyl acetate, perillyl alcohol, POH, Solum Oil, Solum Ol.²⁸ Fleurs de lavande, Lavendelblüten, Flores Spicae, Flor de lavanda, Lavanda, Lavánda, Lavándula, and Espliego.

Lavandula Angustifolia, *Lavandua officinalis*, *Lavandula burnamii*, *Lavandula dentate*, *Lavandula dhofarensis*, *Lavandula latifolia*, *Lavandula stoechas*, *Pri-yangku* and *Khuzama*.^{2, 28}

Parts Used: The flowers of the dried herbs are used to make the essential oils; as well the flowers and flower stalks are used to produce the herb.²⁹

Dosage and Administration: 3x daily unless stated otherwise

Tincture: 1 - 4 drops 4x/day.²⁹

Tea: 1 - 2 tsp (10 grams) of herb in 250 ml of boiling water for 15 min.²⁸

Essential Oil-Inhalation General Use: Prepare 2 - 4 drops of Lavender oil in 2 - 3 cups of boiling water, administer intermittently or daily as needed as an inhaled vapour or use in an essential oil diffuser.²⁸ Use 5 - 6 drops in a full bath, put in bath after it is full.²⁹

Essential Oil-Wound Care: Apply 1- 2 drops directly to skin or saturate sterile gauze and cover affected area.²⁹

Essential Oil-Pain: Apply 3-4 drops in massage oil and massage into painful area.

Herb: Can be made into ointments.

Indications and Medicinal Uses: Lavender oil has been shown to have analgesic pain relieving effects. Intensity of pain is reduced after lavender therapy. Lavender aromatherapy and acupressure are effective in relieving lower back pain.²⁸ Lavender aromatherapy has been used to decrease pain and depression.²⁸ Post-operatively Lavender oil aromatherapy has been successful in decreasing the demands on opiate such as morphine immediately after surgery.²⁹ Lavender oil is known as an antibacterial agent, it has been scientifically tested effective against *Proteus species*,

Staphylococcus aureus and *Streptococcus pyogenes* bacteria.

Ninety percent of the microbes were killed within 3 hours after exposure to the oil.²⁹ Lavender oil at 0.12-2% (v/v) has been affective against both methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *enterococci* (VRE).²⁸

Lavender can also inhibit *Pseudomonas aeruginosa* and *Trichophyton mentagrophytes* as well as nine fungi including *Aspergillus flavus*, *Aspergillus niger*, *Aspergillus aschraceus* and *Aspergillus parasiticus*.²⁹

Lavender is used as a mild sedative for restlessness, nervousness and sleep disorders.² Lavender scent has resulted in lower tension-anxiety and confusion-bewilderment in both men and women.²⁸ Aromatherapy massage with the oils of lavender, chamomile, rosemary and lemon has a positive decrease on anxiety and significant changes in self-esteem. Lavender Aromatherapy can reduce serum cortisol and blood flow to the heart. This suggest that Lavender has a relaxing effect and may benefit coronary circulation.²⁹ Lavender is also used for agitated behaviour, hair loss, anxiety, cancer, cognitive performance, dementia, depression, ear pain, eczema, overall well-being, pain, and rheumatoid arthritis pain.²⁸

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Lavender or its constituents.²⁸ Avoid internal use if pregnant and breast feeding due to possible

emmenagogue effects. Use cautiously if taking drugs that depress the Central Nervous System (CNS), because Lavender may exacerbate sedation.²⁸ Use cautiously with hormonal conditions, due to the potential for estrogenic and antiandrogenic effects. Use cautiously in those with bleeding disorders or those taking anticoagulant medications due to potential for increased anticoagulant effects of coumarin constituent. Also use cautiously with those who have low blood pressure or who are taking antihypertensive agents, due to Lavender's ability to possibly lower blood pressure. Nausea, vomiting and anorexia may occur with large oral doses of Lavender.²⁸ Lavender may have the following drug interactions: the coumarin in Lavender may theoretically effect anticoagulant medications; and Lavender may have an additive effect on certain antidepressants tricyclic agents like Tofranil.²⁸

Lemon Balm



Botanical Name: *Melissa officinalis*

Family: *Labiatae/Lamiaceae*

Common Names/Synonyms: Balm, Bálsamo de Limón, Cure-All, Dropsy Plant, Honey Plant, Melisa, Melissa, Melissaefolium, Mélisse, Mélisse Citronnelle, Mélisse Officinale, Melissenblatt, Monarde, Sweet Balm, Sweet Mary, Toronjil.³⁰ Blam Mint Bee Balm, Citra, Citronmelisse, Common Balm, English Balm, Folia Citronellae, Folia Melissaefolium, Garden Balm, Gastrovegetalin, Hjertensfryd, Kneippe Melisse Pflanzensaft, Lemon Melissa, Lomaherpan, Melissengeist, Valver de Boutons de Fievre Crème. Feuilles de Mélisse,

Melissenblätter, Zitronenkraut, Zitronenmelisse, Frauenkraut, Hoja de melisa, Hoja de toronjil, Hoja de cedrón, Hoja de cidronela.²

Parts Used: Fresh and dried leaves.^{2, 28}

Dosage and Administration:

Fluid Extract: 60 drops per day, to help cognition in Alzheimer's patients.²⁸

Power (leaves): 8 g – 10 g per day.²⁸

Tincture: 2 ml – 6 ml 3 times per day. 1:5 in 45% alcohol.²⁸

Tea: 1 cup of 1.5 g – 4.5 g of herb taken as a tea several times per day as needed.^{2, 28}

Tea Topically: A tea can be applied to herpes lesions and other wounds with a saturated cotton ball several times per day. The tea is prepared by steeping 2 tsp – 3 tsp (2 g - 3 g) of finely cut leaf in 150 mL of boiling water for 5 – 10 minutes and then strain.²⁸

Ointment: 1% of a standardized 70:1 extract topically up to 4 times per day for 5 to 10 days for viral herpes or other wounds.²⁸

Indications and Medicinal Uses: Lemon Balm is useful for herpes simplex virus infections, agitation in dementia, anxiety, cognitive performance, colitis, dyspepsia, and sleep quality.²⁸

Extracts of Lemon Balm exhibit antiviral effects against Newcastle

disease virus, Semliki forest virus, influenza virus, myxoviruses, vaccinia, and herpes simplex virus. Lemon Balm and its constituent rosmarinic acid, are thought to have antioxidant effects and has demonstrated action against HIV-1, herpes simplex II.²⁸ Lemon Balm has shown to have antifungal effects against the following yeast species in vitro: *Torulaspora delbrueckii*, *Zygosaccharom bailii*, *Pichia membranifaciens*, *Dekkera anomala*, and *Yarrowia lipolytica* (Petersen, 2012). It also has demonstrated antibacterial effects against *Porphyromonas gingivalis*, *Prevotella spp.*, *Fusobacterium nucleatum*, *Capnocytophaga gingivalis*, *Veillonella parvula*, *Eikenella corrodens*, *salmonella enterica*, *Peptostreptococcus micros*, and *Actinomyces odontolyticus*.²⁸ It is effective against a multiresistant strain of *Shigella sonnei*.²⁸ Lemon Balm is used for anxiety showing improvements in symptoms including restlessness, agitation, excitement, palpitation and headaches.²⁸ Lemon Balm as a sedative and sleep aid is often used in combination with Valerian (*Valeriana officinalis*) for sleep disorders and insomnia with good results.²⁸

Lemon Balm has been historically used for the following: antithrombotic, analgesic, anorexia, anti-gas, flatulence, antihistaminic, antiviral, anxiolytic, aromatic, attention deficit and hyperactivity disorders, cancer, chronic bronchitis, chronic fatigue syndrome (CFS), coughs, depression, digestive aid, fever reducer, gastrointestinal disorders, Graves' disease, heart conditions, high

blood pressure, HIV, influenza, insect bites, insomnia, irregular menstrual periods, irritable bowel syndrome, intestinal relaxant, memory enhancer, migraine, nausea, nervous palpitations, nervous stomach, neuralgia, promoting menstrual flow, promoting sweating, restlessness, sedative, shingles, skin irritations, sleep disorders, tension headaches, toothaches, tranquilizers, vasodilatations, vomiting, and topical wound healing.²⁸

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Lemon Balm or its constituents. Lemon Balm is assigned to the FDA Generally Recognized As Safe (GRAS) in the USA, with no serious side effects.²⁸ Use cautiously in those with Graves' disease and those taking thyroid medications due to thyroid hormone inhibition. Lemon Balm has the potential to increase intraocular pressure so use cautiously in those with glaucoma and if taking glaucoma medication.²⁸ Use caution when operating heavy machinery or driving due to sedative effects. Lemon balm preparations may contain lead. Do not take during pregnancy and lactation due to lack of scientific data.²⁸ Do not take with alcohol or other sedatives due to sedative effects. Do not take with barbiturates due to hypnotic effects.²⁸ Lemon Balm may increase blood glucose levels and interfere with diabetes medications.³⁰ Do not take with herbs that have a hypoglycemic effect such as: alpha-lipoic acid, bitter melon, chromium, devil's claw, fenugreek, garlic, guar gum, horse chestnut, Panax ginseng,

psyllium, and Siberian ginseng.³⁰ Do not take with herbs that have a sedative effect such as: 5-HTP, calamus, California poppy, catnip, hops, Jamaican dogwood, kava, St. John's wort, skullcap, valerian, yerba mansa, ashwaganda root, calmaus, calendula, capsicum, celery, cough grass, elecampane, Siberian ginseng, German chamomile, goldenseal, gotu kola, hops, sage, sassafras, shepherd's purse, stinging nettle, wild carrot, and wild lettuce.^{28, 30} Do not take with bugleweed or wild thyme that suppresses the thyroid. Stop taking Lemon Balm 2 weeks before any surgery.³⁰

Manuka/Tea Tree New Zealand



Botanical Name: *Leptospermum scoparium*

Family: *Myrtaceae*

Common Names/Synonyms: Red Manuka, Kahikatoa, ti-tree, Tea Tree New Zealand, and New Zealand Tea Tree. Kātoa, pata, rauwiri, rauiri, and taramānuka.²⁹

Parts Used: To produce the essential oil the leaves and branches are used.²⁹

Dosage and Administration: 3x daily unless otherwise stated.

Essential Oil: 1 - 3 drops 3x daily for a maximum of 2 weeks.²⁹

External: 2 - 4 drops in the bath, add after the bath has filled. Or add 4 -6 drops to an aromatherapy diffuser.²⁹

Essential Oil-Wound Care: Apply 1 - 3 drops to a sterile gauze pad to cleanse wounds.²⁹

Essential Oil-Candida Formula (Vaginal): Manuka oil 5 drops; Chamomile Roman oil (*Chamaemelum nobile*) 5 drops; Sandalwood oil (*Santalum album*) 5 drops; and Plain Yogurt (*Acidophilus*) 4 tbsp. Blend together essential oils and yogurt, store in wide-mouth amber jar in the refrigerator. Dip a clean tampon into the mixture, coating thoroughly and inserting into the vagina. Change tampon every 3 - 4 hours.²⁹

Indications and Medicinal Uses: When blended with Lavender (*Lavandula angustifolia*) essential oil it is effective for muscle and back pain. It has been used for anxiety and fear-related stress and even has sedative effects.²⁹ Manuka is effective for asthma because it has low irritability and a high concentration. When taken orally it has a stimulating expectorating effect. When applied topically Manuka has an anesthetic, antiseptic and antiviral effect.²⁹ Manuka is an antibacterial and antimicrobial agent. It is effective against Gram Positive bacteria *Streptococci*, *Staphylococcal*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Streptococcus faecalis*, *Streptococcus agaiatae*, *Micrococcus luteus*, *Sarcina subtilis*, *Bacillus subtilis*, and *Listeria manocytogenes*.^{29, 31} It also is effective against Gram Negative Bacteria *Escherichia coli*, *Pseudomonas aeruginosa* 997, *Klebsiella pneumonia*, *Proteus vulgaris*, *Vibrio furnissii*,

Pseudomonas aeruginosa 2584, and *Pseudomonas fluorescens*.²⁹,

³¹ Manuka is effective against several skin fungi such as impetigo, ringworm fungi, *Trichophyton mentagrophytes*, *Trichophyton rubrum*, *Microsporum canis*, *Aspergillus niger*, and *Candida albicans*.²⁹ It is also effective against some antibiotic-resistant organisms such as *Staphylococcus aureus* Methicillin-resistant. Manuka has antimicrobial effects against *Streptococcus pyogenes*, and *Legionella pneumophila*.²⁹

Manuka's therapeutic actions are as follows: anesthetic, antiathmatic, analgesic, antibacterial, antiparasitic, antipruritic, antimicrobial, antiseptic, antiviral, aphrodisiac, deodorant, diaphoretic, expectorant, fungicidal, germicidal, immune stimulant, insecticide, nervine, sedative, and vulnerary.²⁹ Other uses for Manuka include: abrasions to the skin, abscesses, acne, bed sores, blisters, boils, bronchitis, bunions, burns, candida, carbuncles, catarrh, chicken pox, cold sores, colitis, corns, cough, cuts, cystitis, dandruff, dermatitis, infections of ear or body piercings, eczema, fever, insect bites and stings, gingivitis, infected gums, herpes, influenza, intestinal infections and parasites, laryngitis, lice, lung infections, muscle aches, nail infections, pneumonia, psoriasis, rashes, rheumatism, rhinitis, sinus congestion, stress, sunburn, throat infections, ticks, tinea, tonsillitis, toothaches, mouth ulcers, varicose ulcers, urinary tract infections (UTIs), vaginitis and vaginal infections, vertigo, and warts.²⁹

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Tea Tree New Zealand Oil or its constituents.²⁹ Do not exceed recommended dosage as this may cause skin irritation.²⁹

Mullein



Botanical Name: *Verbascum Thapsus*

Family: *Scrophulariaceae*

Common Names/Synonyms: Mullein Flowers, Woolly Mullein, Great Mullein, blanket herb, velvet dock, flannel flower, and flannel leaf.²⁸ Other possible names are Verascum flowers, Fleurs de bouillion blanc, Fleurs de Molène, Wollblumen, Wollblumenblüten, Königskerzenblumen, Wolkrautblumen, Flores Thapsi barbarati, Flor de verbasco, and Flor de gordolobo.²

Parts Used: The leaves, flowers, root, and fruit are all used.²⁸

Dosage and Administration: Doses are 3 to 4 times a day unless otherwise stated:

Decoction: 2 - 4 Tbsp²⁸

Fluid Extract: 4 - 8 ml²⁸

Infusion: 4 - 6 Tbsp²⁸

Power: ½ - 1 tsp²⁸

Tincture: 5 - 10 ml²⁸

Herb: Can be made into ointments.²⁸

Tea: Drink 1 cup of tea infusion 3 -4x/day. To prepare, pour 150 ml of boiling water over 2 teaspoons (1 g) of herb or use 1 pre made teabag. Steep for 10-15 minutes and then pass through a strainer.²

Indications and Medicinal Uses: Mullein is an herb that has narcotic properties without being poisonous, harmful or addictive. It is a painkiller that calms inflamed nerves.²⁸ Mullein has shown analgesia and sedative effects in mice studies.³² Mullein is used to treat diseases of the respiratory tract such as coughs and bronchitis.^{2, 28} Mullein can be used with other herbs such as garlic (*Allium sativum*) for the treatment of ear aches.⁶ Mullein has antibacterial activity against *Klebsiella pneumoniae*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*.³² Mullein also has nitric oxide radical scavenging activity which may contribute to its anti-inflammatory abilities.³² Other therapeutic actions include: antibiotic, antiseptic, astringent, demulcent, diuretic, emollient, expectorant, nutritive, and vulnerary.²⁸

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Mullein or its constituents. Mullein may contain coumarins derivatives, but research is still lacking, however use cautiously if taking anticoagulants due to the

theoretical additive effective from coumarins that may be contained.⁶ Due to the possible risk of increased bleeding do not take with aspirin, anticoagulants such as warfarin/Coumadin or heparin; antiplatelet drugs like clopidogrel/Plavix and Non-Steroidal Anti-Inflammatory Drugs/NSAIDS such as ibuprofen/Motrin/Advil or naproxen/Naprosyn/Aleve.⁶ If taking herbs or supplements that increase the risk of bleeding use cautiously with Mullein, these herbs are: *Ginkgo biloba*, garlic, and saw palmetto.⁶ Mullein is not recommended in those who are pregnant and/or breastfeeding.⁶

Rhodiola



Botanical Name: *Rhodiola rosea/Sedum rhodiola/Sedum rosea*

Family: *Crassulaceae*

Common Names/Synonyms: Arctic Root, Extrait de Rhodiola, Golden Root, Hongjingtian, King's Crown, Lignum Rhodium, Orpin Rose, Racine d'Or, Racine Dorée, Racine de Rhodiola, Rhodiola, Rhodiola Rougeâtre, Rodia Riza, Rose Root, Rose Root Extract, Rosenroot, Roseroot, Rosewort, Siberian Golden Root, Siberian Rhodiola Rosea, Snowdown Rose.³³

Parts Used: Traditionally the roots have been used.³³

Dosage and Administration: Take on an empty stomach, *DO NOT* exceed daily doses of more than 1 000 mg. Take a break every 1 to 2 weeks.³³

Extract/Capsules: 100 mg - 600 mg daily for 6 to 10 weeks.³³

Extract/Capsules-Adaptogen: 100 mg - 300 mg 3x/day.³³

Extract/Capsules-Anxiety: 170 mg taken 2x/day for 10 weeks.³³

Extract/Capsules-Depression: 100 mg - 1 000 mg 1 – 3x/day for 6 weeks. 340 mg - 680 mg 1x/day for mild-to-moderate depression.³³

Extract/Capsules-Fatigue: 144 mg working up to 576 mg in single daily or divided doses 2x/day for 7 to 28 days.³³ Always start with lowest dose, slowly and gradually work up if needed.

Extract/Capsules-Mental Performance During Fatigue: 100 mg – 1 000 mg in 2 to 3 doses, daily for 2 weeks. Or 3 mg/kg dose right before exercise.³³

Extract/Capsules-Performance Enhancement: 50 mg - 340 mg 2x/day for up to 4 weeks. Or 3 mg/kg dose right before exercise.³³

Indications and Medicinal Uses: Orally, Rhodiola is an adaptogen and is used for increasing energy, stamina, strength and mental capacity. It helps the body adapt to and resist physical, chemical, and environmental stress.³³ It is also used for

improving athletic performance, depression, anxiety, enhancing immunity; and shortening recovery time after prolonged workouts. Rhodiola extract, modestly increases time to exhaustion, peak oxygen consumption (VO_2), peak carbon dioxide output (VCO_2), and pulmonary ventilation in some people undergoing endurance exercise testing.³³ Rhodiola significantly lower blood lactate and plasma creatine kinase levels, suggesting that Rhodiola might prevent skeletal muscle damage following intense exercise.³³ The combination of Rhodiola and *Ginkgo biloba* for 7 weeks had significantly increased maximal oxygen uptake in healthy males.³³ 50 mg of Rhodiola twice daily reduced mental fatigue and improved feelings of well-being in students during an examination period.³³ Night shift workers who took 170 mg daily had reduced feelings of fatigue and had improved mental performance.³³ It is also known to improving sexual function, cardiac disorders such as arrhythmias, and hyperlipidemia.³³ Rhodiola is also used for treating cancer, tuberculosis, and diabetes; preventing cold and flu, swine flu, aging, and liver damage; improving hearing; and strengthening the nervous system.³³

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Rhodiola or its constituents. When used appropriately it is safe for short-term use. Do not use during pregnancy and lactation due to insufficient scientific data.³³ Rhodiola may affect blood pressure, heart rate and cause heart

palpitation, use with caution. Do not use with the following antihypertensive drugs: captopril (Capoten), enalapril (Vasotec), losartan (Cozaar), valsartan (Diovan), diltiazem (Cardizem), amlodipine (Norvasc), hydrochlorothiazide (HydroDIURIL), and furosemide (Lasix).³³ It may interact with estrogen receptors, care is needed with those with estrogen sensitive conditions. Side effects may include: dizziness, dry mouth, restlessness, irritability and insomnia and possible sedation. Rhodiola may decrease blood glucose, do not use with antidiabetic drugs such as: glimepiride (Amaryl), glyburide (Diabeta, Glynase PresTab, Micronase), insulin, pioglitazone (Actos), and rosiglitazone (Avandia).³³ Do not use with: lovastatin (Mevacor), ketoconazole (Nizoral), itraconazole (Sporanox), triazolam (Halcion), chemotherapeutic agents (etoposide, paclitaxel, vinblastine, vincristine, vindesine), antifungals (ketoconazole, itraconazole), protease inhibitors (amprenavir, indinavir, nelfinavir, saquinavir), H2 antagonists (cimetidine, ranitidine), some calcium channel blockers (diltiazem, verapamil), corticosteroids, erythromycin, cisapride (Propulsid), fexofenadine (Allegra), cyclosporine, loperamide (Imodium), and quinidine.³³ Rhodiola may interfere with immunosuppressive therapy do not use with the following medications: azathioprine (Imuran), basiliximab (Simulect), cyclosporine (Neoral, Sandimmune), daclizumab (Zenapax), muromonab-CD3 (OKT3, Orthoclone OKT3), mycophenolate (CellCept), tacrolimus (FK506, Prograf), sirolimus (Rapamune), prednisone (Deltasone,

Orasone), and corticosteroids (glucocorticoids).³³ Do not use with herbs and supplements that have hypoglycemic effects include alpha-lipoic acid, bitter melon, chromium, devil's claw, fenugreek, garlic, guar gum, horse chestnut, Panax ginseng, psyllium, and Siberian ginseng.³³ Do not use with herbs and supplements that have hypotensive effects such as andrographis, casein peptides, cat's claw, coenzyme Q-10, fish oil, L-arginine, lycium, Stinging nettle, and theanine.³³

Stinging Nettle/Nettle



Botanical Name: *Urticae dioica L.* (Stinging Nettle)

Urtica urens L. (dwarf nettle)

Family: *Urticaceae*

Common Names/Synonyms: Bichu, Common Nettle, Feuille d'Ortie, Graine d'Ortie, Grande Ortie, Great Stinging Nettle, Nettle, Nettle Leaf, Nettle Seed, Nettle Worth, Nettles, Ortie, Ortie Brûlante, Ortie des Jardins, Ortie Dioïque, Ortie Méchante, Ortiga, Small Nettle, Stinging Nettles, Urtica, Urticae Herba et Folium, Urticae Radix.³⁴ Dwarf Nettle, Dog nettle, Feuille/Herb d'ortie, Ortie commune, Brennesselblätter, Brennesselkraut, Nesselkraut, Haarnesselkraut, Hanfnesselkraut, Sumidad de ortiga.²

Parts Used: Leaves and root have been used.²

Dosage and Administration:

Fluid Extract: 100 mg/kg of Stinging Nettle extract (45% ethanol, 55% water, and 2.7 g of dry matter/L) dissolved in a glass of water and taken in 3 portions daily for 8 weeks for inflammation.³⁴

Tea: 50 ml stewed leaves or as a tea taken for Arthritis.³⁴

Herb (Leave): 8 g – 12 g of dried leave daily.²

Herb (Root): 4 g – 6 g of dried root daily.²

Capsules: 600 mg of freeze-dried capsules taken at the onset of symptoms for 1 week for Allergic Rhinitis.³⁴

Topical for Osteoarthritis: The underside of a leaf cut from fresh nettle plant has been applied to the painful area with gentle pressure for 10 sec - 30 sec, moved 2x, and applied 2x/day for 1 week.³⁴

Ointment for Osteoarthritis: Application of a topical cream, composed of 13.33% (w/w) Stinging Nettle extract oil-in-water emulsion, used 2x/day for 2 weeks.³⁴

Indications and Medicinal Uses: Stinging Nettle is used orally for joint ailments, osteoarthritis (OA), musculoskeletal diseases, as a diuretic, for allergies, allergic rhinitis, and urinary tract infections (UTI).³⁴ It has been used for internal bleeding, epistaxis/nose bleeds, anemia, poor circulation, diarrhea, dysentery, asthma,

pulmonary congestion, rashes, eczema, for blood purification, wound healing and a general tonic. Nettle can be used topically for musculoskeletal aches and pains, oily hair and hair loss/alopecia and scalp seborrhea.³⁴ Oral or topical use of Stinging Nettle leaf extract has been used to improve symptoms of pain in patients with OA.³⁴ Nettle extract has been used in combination with conventional nonsteroidal anti-inflammatory drugs (NSAIDs) or other analgesics allowing for lower analgesic doses in some people.³⁴ Topically, Stinging Nettle leaf seems to improve pain and disability in those with osteoarthritis of the thumb.³⁴

Stinging Nettle has been used for: urination disorders, benign prostatic hyperplasia (BPH), nocturia frequency, dysuria, urinary retention, irritable bladder, urinary tract inflammation, kidney stones/nephrolithiasis and as an astringent.³⁴ Other uses include: uterine bleeding, splenomegaly, diabetes, endocrine disorders, gastric hyperacidity, biliary complaints, heart failure, cancer, and prevention of signs of aging.³⁴ The young leaves are also cooked and ate as vegetables.³⁴

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Stinging Nettle or its constituents. Nettle may cause rash, itching and mild discomfort in some people. When used appropriately is safe for up to two years.³⁴ Do not use while pregnant due to possible abortifacient and uterine-stimulant

effects. Do not use Stinging Nettle while breast feeding due to lack of scientific data.³⁴ Nettle may cause an increase in blood glucose and aggravate diabetic condition. Do not take with antidiabetic drugs such as glimepiride (Amaryl), glyburide (DiaBeta, Glynase PresTab, Micronase), insulin, pioglitazone (Actos), and rosiglitazone (Avandia).³⁴ Some people experience gastrointestinal complaints from oral ingestion of Stinging Nettle such as constipation, diarrhea and gastric disorder. Nettle contains a coumarin derivative and can decrease coagulation and cause hemorrhage.³⁴ Do not use with Warfarin. Nettle may lower blood pressure and should not be used with antihypertensive drugs such as captopril (Capoten), enalapril (Vasotec), losartan (Cozaar), valsartan (Diovan), diltiazem (Cardizem), Amlodipine (Norvasc), hydrochlorothiazide (HydroDIURIL), and furosemide (Lasix).³⁴ Large doses of Stinging Nettle can have an additive depressive effect on the CNS and should not be used with CNS depressant drugs. Nettle should not be used with Lithium since it has diuretic and natriuretic properties.³⁴ Do not use with herbs and supplements that have hypoglycemic potential, including devil's claw, fenugreek, guar gum, Panax ginseng, and Siberian ginseng. Do not use with herbs and supplements that can cause hypotensive effects include andrographis, casein peptides, cat's claw, coenzyme Q-10, fish oil, L-arginine, and lyceum.³⁴

Tea Tree Australia



Botanical Name: *Melaleuca alternifolia* **Family:** *Myrtaceae*

Common Names/Synonyms: Medicinal tea tree.²⁹

Parts Used: The leaf is made into an essential oil.²⁹

Dosage and Administration: 3x daily unless otherwise stated.

Essential Oil: 1 - 3 drops.²⁹

Essential Oil-Wound Care: Apply 1 - 3 drops to a sterile gauze pad to clean wounds.²⁹

Essential Oil-Mild Burns: Apply 10 drops Tea Tree oil and 10 drops Lavender oil (*Lavandula angustifolia*) directly to skin or saturate sterile gauze pad and cover affected area.²⁹

Essential Oil-Insect Stings and Bites: Apply 10 drops Tea Tree oil and 10 drops Peppermint oil (*Mentha x piperita*) directly to area as often as needed.²⁹

Essential Oil-Acne and Boils: Blend 20 drops of Tea Tree oil and 20 drops of Lavender oil (*Lavandula angustifolia*) in an amber bottle. Apply with a cotton ball or sterile gauze to the affected area 3 - 4 times a day.²⁹

Essential Oil-Sunburn: Apply 20 drops of Tea Tree oil and ½ cup of Aloe Vera oil to sunburn frequently.²⁹

External: 1 - 4 drops in the bath, add to bath after it is filled.²⁹

Germicide: 1 to 200 solution.²⁹

Indications and Medicinal Uses: Tea Tree Australia is an antibacterial agent and is effective against all 20 strains of *Listeria monocytogenes*. It has antimicrobial activity against *Escheria coli*, *Pseudomonas aeruginosa*, *Candida albicans*, and the yeasts *Schizosaccharomyces pombe*, *Saccharomyce cervisiae*, and *Tarulopsis utlis*.²⁹ Tea Tree Australia is also useful against *Enterobacter aerogenes*, *Escherichia coli*, *Klebsiella pneumonia*, *Proteus mirabilis*, *Listeria monocytogenes*, *Salmonella choleraesuis*, *Staphylococcus aureus*, *Shigella flexneri*, *Bacillus subtilis*, *Staphylococcus saprophyticus* and *Staphylococcus xylosus*.²⁹ It has effective antimicrobial activity against various antibiotic-resistant *Staphylococcus* species such as MRSA.²⁹ Tea Tree oil can be used in an 1 to 200 solution as a germicide against *Streptococcus*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Propionibacterium acne*, *Meningococcus*, diphtheria,

and *Gonococcus*, *Pneumococcus*.²⁹ Tea Tree oil demonstrates antiviral activity against Herpes simplex virus type I and II; polio type I; ECHO 9; Coxsackie BI; adenovirus which is responsible for upper respiratory tract infections, conjunctivitis, tonsillitis and ear infections; influenza A/PR/8 virus subtype HINI, which is also known as the swine flu virus and it has been administered to HIV patients with some positive results.^{29,35}

Tea Tree oil therapeutic actions are as follows: analgesic, antibacterial, anticarcinogenic, antifungal, anti-inflammatory, antimicrobial, antiparasitic, antipruritic, antiseptic, antiviral, deodorant, diaphoretic, expectorant, fungicidal, germicidal, immune stimulant, insecticide and vulnerary.²⁹ Other medicinal uses for Tea Tree oil include: abrasions to the skin, abscesses, acne, arthritis, bed sores, blisters, boils, bronchitis, bunions, burns, candida, carbuncles, catarrh, chicken pox, cold sores, colitis, corns, cough, cracked skin, cuts, cystitis, dandruff, dermatitis, infections of ear or body piercings, eczema, fever, insect bites and stings, gingivitis, infected gums, herpes, influenza, intestinal infections and parasites, laryngitis, lice, lung infections, muscle aches, nail infections, pneumonia, psoriasis, rashes, rheumatism, rhinitis, sinus congestion, sunburn, throat infections, ticks, tinea, tonsillitis, toothaches, mouth ulcers, varicose ulcers, urinary tract infections (UTIs), vaginitis and vaginal infections, vertigo, ingrown toenails and warts.²⁹

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Tea Tree Australia Oil or its constituents.²⁹ Do not exceed recommended dosage as this may cause skin irritation.²⁹

Valerian



Botanical Name: *Valeriana officinalis*

Family: *Valerianaceae*

Common Names/Synonyms: English Valerian, all heal, cat's Valerian, garden heliotrope, setwall and vandal root.²⁸ Garden Valerian, Racine de Valériane, Herbe aux chats, Baldrianwurzel, Katzenwurzel, Balderbrakkenwurzel, Raiz de Valeriana, Raiz de hierba de los gatos.²

Parts Used: The rhizome and roots from 2 year old plants are used.²⁸ The roots are said to contain most of the active constituents.⁶

Dosage and Administration: For tranquilizing and antispasmodic effects can use up to 3x/day, start with lowest dose and gradually work up if needed. For sleep aid use up to 2 hrs before bed. *DO NOT* use for more than 8 weeks straight without a break.²⁸

Fluid Extract: 1 - 3 ml.²⁸

Infusion: 4 - 6 Tbsp.²⁸

Power: ½ - 1 tsp.²⁸

Tincture: 3 to 5 ml.²⁸

Tea: 1.5 - 3 g of root steeped for 5 - 10 min in 150 ml of boiling water.⁶

Herb: Can be made into ointments.

Capsules: 300 to 1 800 mg taken by mouth as directed.⁶

Essential Oil: 4 drops externally in a bath/minimum 0.002 g of essential oil/L of hot water (34-37 C), soak in bath for duration of 10 - 20 min.^{2, 28} Fill bath then add oil.

Juice: Extracted from fresh root, 1 - 2 Tbsp.²⁸

Indications and Medicinal Uses: Valerian has a powerful tranquilizing and antispasmodic effect on the nervous system but is not habit forming and is without side effects in recommended doses. Valerian was widely used before the advent of synthetic tranquilizers like Valium and Librium.²⁸ Valerian has been used to treat insomnia and general restlessness.^{2, 28} It has been shown to reduce sleep latency/time to sleep onset, improve sleep quality and prolong sleep time. Taking Valerian up to 2 hours before bed has the greatest benefit.²⁸ Valerian inhalation has been shown to significantly shorten sleep latency and prolong sleep time.³⁶ Valerian with Lemon Balm can improve quality and quantity of

sleep.²⁸ Valerian and Kava kava (*Piper methysticum*) can be used in the treatment of stress-induced insomnia.³⁷ Valerian will lower high blood pressure and slow the action of the heart while increasing its overall force. This is why it is used for cardiac palpitations associated with stressful conditions.²⁸ Other therapeutic actions include analgesic, tonic, anesthetic, stimulant, anodyne, nervine, sedative, antispasmodic, hypotensive, aromatic, diuretic, cardiac stimulant, diaphoretic, carminative, and cathartic.²⁸

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Valerian or its constituents. Smaller doses of Valerian at frequent intervals are recommended over increasing the amount of each dose due the fact that an excessive dose can produce stupor, vomiting, drowsiness, dizziness, severe headache, unsteadiness, excitability, uneasiness, stomach upset, and low body temperature.^{6, 28} This is usually only seen with chronic use, such as Valerian taken longer than 2 to 4 months. Use caution operating heavy machinery or driving in the few hours after taking Valerian as it can reduce concentration or complicate thinking.⁶ It is not recommended to use during pregnancy or breastfeeding.⁶ Since Valerian can cause drowsiness caution is advised if taken other drugs that cause drowsiness such as: benzodiazepines such as lorazepam/Ativan, diazepam/Valium; barbiturates like phenobarbital; narcotics such as codeine;

antidepressants and alcohol.⁶ Be aware Valerian has a very unpleasant, strong dirty stinky feet, nauseating ordour, do not use if sensitive to smells! Capsule form has less of a smell.

Witch Hazel



Botanical Name: *Hamamelis virginiana*

Family: *Hamamelidaceae*

Common Names/Synonyms: Winter bloom, spotted alder, shaping hazel, pistachio, and tobacco wood.¹⁹ Hamamelis leaf, Feuilles d-hamamélis, Feuilles du noisetier de la sorcière, Hamamelisblätter. Virginische ZaubernB-, Zauberstrauch-, Hexenhasel-, Zaubehaselblätter, and Hoja de hamamelis.²

Parts Used: The bark, leaves, and the young twigs are most often used.¹⁹

Dosage and Administration: 3 - 4 times a day unless otherwise stated.

Decoction: 2 tbsp - 4 tbsp.¹⁹

Fluid Extract: 2 ml - 4 ml.¹⁹

Infusion: 4 tbsp - 8 tbsp.¹⁹

Power: ½ tsp - 1 tsp.¹⁹

Tincture: 2 ml - 4 ml.¹⁹

Topical-Bites, Bruises and Burns: Apply liquid extract, enough to cover the area, directly to affect area.¹⁹

Topical-Bleeding Wounds: Combine with Calendula tincture (*Calendula officinalis*) and apply to wound.¹⁹

Topical-Hemorrhoids: Apply extract topically. Use infusion or tincture orally.¹⁹

Ointment-Hemorrhoids: 1 oz witch hazel; 1 oz Mullein (*Verbascum thapsus*); 1 oz Slippery elm (*Ulmus rubra*); 1 oz Cranesbill (*Geranium maculatum*); 1 oz Yarrow (*Achillea millefolium*); Anhydrous lanolin; and Beeswax. Mix herbs together, melt lanolin and beeswax and mix into herbs, add enough lanolin and beeswax to make a smooth consistency, let settle and cool. Apply topically as frequently as required. The herbs can also be mixed and used as an infusion. Take 1 cup 3 times daily. Store for up to 24 hours in the refrigerator.¹⁹

Compress-Varicose Veins/Inflammation: Soak bandage with extract and apply to affected area. Keep bandage moist.¹⁹

Inhale-Nosebleed: Infusion or extract can be sniffed up the nose to help stop nosebleeds.¹⁹

Indications and Medicinal Uses: Witch hazel is an astringent and topical anti-inflammatory agent.^{2, 6} The extract and tincture are useful as a first aid remedy for minor bleeding, bites, burns, scalds and has cosmetic uses such as a facial cleanser.^{6, 19} It is useful in hemorrhaging of the lungs, stomach, nose, rectum, uterus and kidneys. It can be used orally or locally for hemorrhoids.^{2, 19} Other uses of witch hazel include: colitis, diarrhea, inflamed eyes, and menopausal problems such as excessive bleeding, miscarriage, mouth ulcers, nosebleeds, ulcers, vaginal catarrh, varicose veins, and venous congestion.¹⁹

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Witch hazel or its constituents including salicylates.⁶ Witch hazel is considered safe when used appropriately.¹⁹ Use cautiously in those with liver and/or kidney disorders as Witch hazel has the potential to cause damage to these organs when taken in large doses by mouth.⁶ Witch hazel may lower blood sugar levels, use cautiously in those with diabetes or hypoglycemia, and when taking drugs, herbs or supplements that affect blood sugar.⁶ Witch hazel may have an additive effect on antibiotics, antifungal, anti-inflammatory, antiviral, and antiulcer medications, herbs and supplements.⁶ Use cautiously in children due to lack of safety evidence in this population. Avoid in pregnancy and breastfeeding due to lack of safety evidence.⁶

Yerba Mate



Botanical Name: *Ilex paraguariensis*

Family: *Aquifoliaceae*

Common Names/Synonyms: Chimarrao, Green Mate, Hervea, Ilex, Jesuit's Brazil Tea, Jesuit's Tea, Maté, Maté Folium, Paraguay Tea, St. Bartholemew's Tea, Thé de Saint Barthélémy, Thé des Jésuites, Thé du Brésil, Thé du Paraguay, Yerbamate, Yerba Mate, and Yerba Maté.³⁸ Maté Leaf, Paraguay tea, St. Bartholomew's tea, Thé de Paraguay, Mateblätter, Yerbamaum, Paraguaytee, Paranátee, Herba Ilicis paraguayensis, Hoja de mate, Mate, Hierba mate, and Té de Paraguay.²

Parts Used: The leaves, either green or roasted.²

Dosage and Administration: Average daily dose is 3 g of dried leaf unless otherwise stated.²

Liquid Extract: 2 ml - 4 ml of 1:1 extract in 25% alcohol, 3x/day.³⁸

Infusion: 330 mL infusions prepared with either 50 mg/ml of green Yerba Mate or 20 mg/ml of roasted Yerba Mate 3x/day before or after meals for 40 days.³⁸

Tea: 2 g - 4 g of dried leaf in 1 cup (150 ml) of water, steep for 5 to 20 minutes and then strain, 3x/day.³⁸

Tea-Diabetes: 330 mL of tea (20 mg/mL) 3x/day for 20 days to reduce glucose and glycated hemoglobin levels.³⁸

Tea-Performance Enhancement: 1 tbsp of leaves made into a tea as a single dose.³⁸

Indications and Medicinal Uses: Yerba Mate is used as a stimulant to relieve mental and physical fatigue.^{2, 38} The caffeine content in Yerba Mate plays a significant role in many of its therapeutic actions. Caffeine helps in the recovery of muscles and may help reduce Delayed on Set of Muscle Soreness (DOMS).¹⁷ It can also be used for weight loss and as a diuretic.^{2, 38} It is also used for modifying mood, as a mild analgesic for headache, rheumatic pains, and as a laxative in large amounts.³⁸ Yerba Mate can be used orally for depression, urinary tract infections (UTIs),

chronic fatigue syndrome (CFS), cardiac insufficiency, arrhythmias, hypotension, nervous heart complaints, kidney and bladder stones, and to promote cleansing and excretion of waste.³⁸ It may help lower total cholesterol, low-density lipoprotein (LDL), and non-high density lipoprotein (non-HDL) cholesterol in those with dyslipidemia and hypercholesterolemia.³⁸

Contradictions and Cautions: Avoid in anyone with a known allergy or hypersensitivity to Yerba Mate or its constituents.

Yerba Mate is possibly safe for oral use when used appropriately for short term use.³⁸ When Yerba Mate is taken orally in large amounts or for prolonged periods of time it is associated with an increased risk of mouth cancer, esophageal cancer, laryngeal cancer, kidney cancer, bladder cancer, and lung cancer. Stopping Yerba Mate abruptly after prolonged use may result in caffeine withdrawal symptoms such as headache, irritation, dizziness, nervousness, agitation, insomnia and anxiety. Adverse effects of Yerba Mate are based on the caffeine content in Yerba Mate. The fatal acute oral dose of caffeine is estimated to be 10-14 grams or 150-200 mg per kilogram.³⁸ *The NCAA bans caffeine levels of 15 µg/ml in the urine which is the equivalent of ingesting 500 mg of caffeine within a few hours of being tested.*¹⁸ *The International Olympic Committee (IOC) and World Anti-Doping Agency allows 12 µg/ml in the urine which is equivalent to ingesting 8 cups of espresso.*¹⁸ Due to the caffeine content intake should be closely

monitored in pregnant and breastfeeding woman due to potential harm to the baby.³⁸ Yerba Mate may increase heart rate and contractility, arrhythmia and blood pressure. It may increase blood glucose and should be taken cautiously in those with diabetes. Excessive amounts can cause gastrointestinal upset including nausea and vomiting. Since Yerba Mate contains caffeine it should not be combined with drugs like Adenosine (Adenocard), alcohol, Amphetamines, Cimetidine (Tagamet), Clozapine (Clozaril), Cocaine, Dipyridamole (Persantine), Disulfiram (Antabuse), Ephedrine, Fluvoxamine (Luvox), Mexiletine (Mexitil), Monoamine Oxidase Inhibitors (MAOIs), nicotine, Pentobarbital (Nembutal), Phenylpropanolamine, Quinolone antibiotics, Riluzole (Rilutek), stimulant drugs, and Theophylline.³⁸ Caution should be used with anticoagulant and antiplatelet drugs and herbs such as angelica, clove, danshen, garlic, ginger, ginkgo, and Panax ginseng, as the caffeine in Yerba Mate might increase the risk of bleeding.³⁸ Caution should be used with antidiabetic drugs as in theory Yerba Mate might interfere with blood glucose control. The caffeine in Yerba Mate can increase calcium and magnesium excretion and increase urine creatine levels.³⁸ Yerba Mate taken with Bitter orange which also contains caffeine can increase blood pressure and heart rate and cause serious cardiovascular effects use with caution.³⁸ Use with caution with other caffeine containing foods and herbs such as black tea, coffee, green tea, oolong tea, cocoa, guaran and mate.

Caffeine and Ephedra (*Ma huang*) may increase the risk of serious life-threatening or debilitating effects such as myocardial infarction, stroke, seizures, death, and hypertension, **DO NOT** use caffeine and ephedra or/and other stimulants together!³⁸

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