Foundations of Herbal Medicine
Getting to Know Herbs
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Presented by:
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Pictured: Gaia Herbs Farm, Brevard NC

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Part 1
Intro to Herbal Medicine

• A system of healing which uses plant or plant-derived preparations to treat, prevent, or cure health conditions and diseases.

• An estimated 80% of the world’s population rely on medicinal plant preparations for their primary healthcare needs, according to the World Health Organization.
Herb
The word herb (sometimes referred to as botanical) has several different meanings depending on the perspective:

• In commercial terms - herb generally refers to plants used for culinary purposes.
• In horticultural terms - herb refers to "herbaceous," which describes the appearance of the plant (i.e., a non-woody, vascular plant).
• In taxonomic terms - herb generally refers to the aboveground parts or the aerial parts (i.e., the flower, leaf, and stem).
• In terms of herbal medicine - herb refers to plants used in various forms or preparations, valued for their therapeutic benefits.
Phyto Means Plant

- **Phytochemicals**: Plant compounds or chemical constituents are referred to as "secondary metabolites" of which there are several classes including alkaloids, coumarins, flavonoids, glycosides, gums, mucilages, phenols, tannins, terpenes.

- **Phytomedicinals**: Medicinal substances that originate from plants including phytochemicals as well as whole plants and herbal preparations.

- **Phytotherapy**: A blend of herbal tradition with science defining a new medical paradigm that combines the wisdom of ancient tradition with the cutting edge of current research.
Phytochemistry

- Whole Plant is more than the sum of the parts
- Whole Plant action
  - Synergy interaction between all chemical compounds
- Specific Active Compound action
  - Compounds strong enough to dominate action
    - Belledonna
    - Poppy
Synergy

- *Synergy* - within a plant or a combination of plants taken together.
- Plant compounds which are not active themselves can act to improve the stability, solubility, bioavailability, or half-life of the active constituents in that plant or herbal combinations of several plants.
- A single compound in pure form may have only a fraction of the pharmacological activity of that of the whole plant matrix.
Whole Plant is More than the Sum of the Parts

- *Filipendula ulmaria* commonly known as Meadowsweet
  - High in Salicylates (known to cause gastric irritation and inflammation)
  - Emperical and traditional use of plant to reduce gastric inflammation and heal mucosa
  - Synergy of compounds
Herbal Combinations Synergy

- Quercetin, resveratrol, curcumin, piperine

- Data suggests that delivering these compounds in combination may improve the acute bioavailability and significantly increase apical-to-basal uptake of curcumin and resveratrol compared to supplementation with single compounds.
Phyto-Pharmacology

- Delivery System, Dosage
- Absorption and Distribution
  - Bioavailability, biotransformation
- Site of Action
- Metabolism and Excretion
  - Enzyme systems up or down regulated
  - Receptor antagonist or agonist
  - Hormone modulation
  - Route of excretion
    - Kidney, liver, bowels, secretions, respiration
- Toxicity and Adverse Reaction
- Drug Interaction
The Physiology of Herbal Medicine: How do Herbs Work?

- Working from the Vis Medicatrix: Herbs do not heal in and of themselves. They support Self Organization when that fails (disease).
- Reflex Response: At cellular level interfacing with the cell membrane through electrochemical or enzymatic activity.
Central Elements to Traditional Herbal Medicine

• Treat the whole person, body, mind, spirit, social.

• Patient viewed as a unique individual.

• Organisms = cells, organs, systems, body, mind, spirit, earth. “The Gaia” is all connected. Organisms perceive and react to their environment.

• Health is more than the absence of disease.

• Disturbances of homeostasis- internal and external environment.

• Comprehending the needs of the patient more in terms of physiology than pathology.
Central Elements to Traditional Herbal Medicine

- Aim to create optimal health by toning, supporting, and balancing all the systems in the body.
- This would include lifestyle, diet, positive attitude, stress reduction and management.
- Treat the causes and relieve the symptoms.
- Minimize the risk of Adverse Effects.
- Respect for traditional knowledge.
- Enhance population-wide health benefits.
The Role of Taste

- **Salty:** Herbs and sea vegetables containing multiple minerals and mineral salts have an affinity for resolving congestion and softening tissue masses.

- **Sour:** Have astringent effects and assist in the regulation of fluids.

- **Bitter:** Generally purgative, cooling and drying.

- **Sweet:** Replenish and strengthen, affinity for the spleen and stomach, generally considered “tonic” herbs.

- **Pungent:** Eliminate toxins and inflammation and resolve stagnation by assisting in the movement of Qi, Vital Force, Energy.
Parts of a plant that are used:

• **Cortex**: bark
• **Flor / Flos.**: flower
• **Folia**: leaves
• **Fructus**: fruit
• **Herba**: all the aerial parts of the plant
• **Radix**: root
• **Rhizome**: underground stem
• **Semen**: seed
Variability in Raw Material & Products

- Species and plant used
- Growing conditions – soil, rain, sun, pests
- Harvesting – age, technique
- Processing and preparation – washing, drying temperature, humidity, cut size, storage
- Manufacturing methods – concentration
- Dosage form and dosage units
- Standardized markers
Standardization: Kava as an Example

- Kavalactones: Most Controlled Clinical Trials based on a 70% Preparation or 210 mg KL per day.
- Standards range from 30%-70%
- Standards were used to determine safety guidelines and labeling requirements
- Doesn’t mean non-standardized preparations don’t work
Wrap Up – Questions to Ask

1. Do you buy your herbal raw materials directly from the grower or from an intermediary supplier?
2. Do you grow any of your own botanicals?
3. How do you validate herbal raw material genus and species?
4. Are your herbal ingredients organic? Are they ecologically wildharvested?
5. What solvents do you use to extract your herbs?
6. Are you Prop 65 compliant?
7. Can you provide test results for your products showing results of heavy metal tests, testing for pesticides and other contaminants?
8. How do you validate potency? Can you provide results of potency testing?
Part 3: Herbal Delivery Systems

- Herbal Teas
- Herbal Tablets
- Herbal Capsules
- Tinctures
- Liquid Extracts
- Liquid Phyto-Caps™
- Topical Application
Herbal Preparations

• **Decoction:** A tea made from boiling plant material, usually the bark, rhizomes, roots or other woody parts, in water. Place plant matter in cold water, cover and bring to a boil; simmer 10-20 minutes and strain.

• **Infusion:** A tea made by pouring boiling water over flowers, leaves, and other aerial parts, and allowed to steep 10-30 minutes. Cold infusions are an option for high polysaccharide plants.
Herbal Teas

Infusions and Decoctions can be used for:

• Hot or cold tea
• Skin wash
• Soak or bath
• Douche
• Hair rinse
• Mouth wash
• Nasal lavage
• Sitz bath
Herbal Tincture and Extracts

• Dried plant material (the marc) soaked in a solvent (the menstruum)
• The ratio of plant to solvent is often 1 : 5
• A specific tincture is made with fresh herbs vs dried
• A fluid extract is made at 1:1 strength
• Very long shelf life
• Convenient for dispensing
Herbal Tablets and Capsules

- Need to use binders and coating agents to keep the tablets together and keep them from chipping.

- May use commercial solvents in extraction if delivering a powdered standardized extract.

- Consider the digestion and compliance issues.

- Need to use flow agents to help the powder enter the capsule smoothly.

- May use commercial solvents in extraction if delivering a powdered standardized extract.
Liquid Phyto-Caps™

- Alcohol free liquid extracts
- Free of binders, fillers and excipients
- More stable & degrade less in potency
- Longer shelf life
The Liquid Phyto-Cap™ Solution

1 GAIA HERBS LIQUID PHYTO-CAP™ = 75 DROPS OF GAIA HERBS LIQUID EXTRACT = 375 DROPS OF OTHER BRANDS’ TINCTURES
Topical Herbal Preparations

- **Poultice**: A therapeutic topical application of a soft moist mass of plant material such as bruised fresh herbs.
- **Fomentation**: Therapeutic topical application of a warm moist cloth soaked in a water extraction of medicinal plants.
- **Essential Oils**: Aromatic volatile oils extracted from the leaves, stems, flowers, and other parts of plants.
- **Herbal Infused Oils**: A process of extraction in which the volatile oils of a plant substance are obtained by soaking the plant in a carrier oil for approximately two weeks and then straining the oil.
- **Creams and Salves**: A cream is generally a water-based preparation in which the herbs and medicinal properties are mixed allowing for absorption from the surface of the skin. A salve is an ointment, which has been made from a heated mixture of oil and beeswax.
Part 4: Safety Precautions

• Primum non nocere - “First do no Harm”
• Communication is key - be sure to identify list of meds and supplements during intake
• Keep Primary Care advised

• Three areas for concern:
  1) Multiple medications
  2) Highly allergic and chemically sensitive individuals
  3) Recreational and intentionally adulterated supplements
Variability

* Same dose does not produce same concentration in each person

* Factors that can alter pharmacokinetic activity
  - Drug-drug interactions
  - Drug-food interactions
  - Drug-supplement interactions (e.g., competitive inhibition)
  - Drug-disease interaction (altered GI, renal and/or hepatic function)
  - Pregnancy
  - Genetic variations (CYP3A4, CYP2D6, CYP2C9 and CYP1A2 and CYP2C19)
  - Body fat, select medical conditions
Risk Based Upon Human Data

Risk of clinically significant drug interaction using standardized extracts at typical doses:

- Black cohosh (*Actaea racemosa*): LOW
- Echinacea (*E. purpurea*): LOW
- Ginkgo (*G. biloba*): LOW, doses 240 mg SE or less
- Milk thistle (*Silybum marianum*): LOW
- Panax ginseng: LOW
- Kava (*Piper methysticum*): LOW

Part 5

Active Plant Constituents

• Major influence on the action of the herb
• Offers insight for the clinician
• Primary and Secondary Metabolites
  – Primary compounds are essential for the function and survival of the plant, life processes including photosynthesis, respiration, assimilation of nutrients, growth, transport, and so forth
  – Secondary compounds do not necessarily have a role in the plants direct life survival processes
  – Ecological function- defense, pollination, UV light, stress, adaption
Review Points

- Major influence on the therapeutic action of the herb
- Offers insight for the clinician
- Synergy happens in phytocompounds
- Secondary Metabolites
  - Alkaloids
  - Terpenes
  - Resins
  - Glycosides
  - Phenols
    - tannins
    - flavonoids
    - salicylates
    - coumarins
    - anthraquinones
Polyphenol Compounds

• Common aromatic benzene ring
• Water-soluble (majority) or lipophilic
• Bring color, scent, flavor to plant
• Antioxidant, free-radical scavenger activity
• Anti-inflammatory
• Anti-microbial
• Occur as glycosides
• Hyperforin, carnosol
Part 6: Herbal Actions

- Terminology of Herbal Medicine
- Herbal Medicinal Actions
  - Description and Guide for Clinicians
  - Often unique to herbal application
  - Offer a variety therapeutic values in a formula
Medical Terminology

- **adaptogen**: Plant compounds which increase “the state of non-specific resistance” in stress
- **alternative**: A substance that produces a gradual, beneficial change in the body
- **analgesic**: Relieve pain
- **anaphrodisiac**: Reduces capacity for sexual arousal
- **antianemic**: Preventing or curing anemia
- **antibacterial**: Destroying or stopping the growth of bacteria
- **antibilious**: Easing stomach stress
- **anticatarrh**: Reduces inflamed mucous membranes of head and throat
- **antidepressant**: Therapy that acts to prevent, cure, or alleviate mental depression
- **antidiarrhetic**: Substances used to prevent or treat diarrhea
- **antiemetic**: Stopping vomiting
- **antifungal**: Destroying or inhibiting the growth of fungus
- **antihemorrhagic**: Controlling hemorrhaging or bleeding
Medical Terminology

- **anti-inflammatory** - controlling inflammation, a reaction to injury or infection
- **antimicrobial** - destructive to microbes
- **antioxidant** - prevents or inhibits oxidation
- **antipruritic** - preventing or relieving itching
- **antirheumatic** - easing pain of rheumatism, inflammation of joints and muscles
- **antiseptic** - agent used to produce asepsis and to remove pus, blood, etc.
- **antispasmodic** - calming nervous and muscular spasms or convulsions
- **antitussive** - controlling or preventing cough
- **antiviral** - opposing the action of a virus
- **aperient** - a very mild laxative
- **aperitive** - stimulating the appetite for food
- **aphrodisiac** - substance increasing capacity for sexual arousa
Medical Terminology

• **aromatic** - a substance with a strong, volatile, fragrant aroma.
• **astringent** - agent that constricts and binds by coagulation of proteins a cell surface
• **bitter** - stimulates appetite or digestive function
• **cardiotonic** - increases strength and tone (normal tension or response to stimuli) of the heart
• **carminative** - causing the release of stomach or intestinal gas
• **cathartic** - an active purgative, producing bowel movements
• **cholagogue** - an agent that increases flow of bile from gallbladder
• **choleretic** - an agent that stimulates the formation of bile
• **counterirritant** - agent producing an inflammatory response for affecting an adjacent area
• **demulcent** - soothing action on inflammation, especially of mucous membranes
• **diaphoretic** - increases perspiration (syn: sudorific)
• **diuretic** - increases urine flow
Medical Terminology

- **emet**ic - produces vomiting
- **emmena**gogue - agent that regulates and induces normal menstruation
- **emolli**ent - softens and soothes the skin
- **escharotic** - a caustic substance that destroys tissue and causes sloughing
- **expectorant** - facilitates removal of secretions
- **febrifuge** - an agent that reduces or relieves a fever
- **galacta**gogue - an agent that promotes the flow of milk (syn: galactogenic)
- **hemostatic/styptic** - controls the flow or stops the flow of blood
- **hepatic** - having to do with the liver
- **hypertensive** - raises blood pressure
- **hypoglycemant** - agent that lowers blood sugar
- **hypotensive** - lowers blood pressure
- **lactifuge** - reduces the flow of milk
- **laxative** - substance that acts to loosen the bowels contents
Medical Terminology

- **nervine** - a nerve tonic
- **purgative** - laxative, causes the evacuation of intestinal contents
- **rubefacient** - agent which reddens skin, dilates the vessels, and increases blood supply locally
- **sedative** - exerts a soothing, tranquilizing effect on the body
- **soporific** - inducing sleep
- **stimulant** - temporarily increases body or organ function
- **stomachic** - aids the stomach and digestion action
- **sudorific** - acts to increase perspiration
- **tonic** - a substance that increases strength and tone
- **vulnerary** - a substance used in the treatment or healing of wounds
Botanical Adaptogens

• Substances which elicit a state of raised resistance in the body to stressors, whether physical, chemical or biological
• Normalizes physiological function, whether abnormal state is due to hyper or hypo function
• Action does not over-influence the body
• Non-toxic and have relatively no side effects

Adaptogens

- Allostasis - body’s adaptation to stress
- Allostatic systems are essential to survival
- Chronic Stress increases allostatic load leading to maladaptive responses
- The stress-protective activity of adaptogens is associated with regulation of homeostasis of the hypothalamic-pituitary-adrenal axis

Adaptogens

- Metabolic Regulators
- Improves carbohydrate metabolism
- Counter catabolic processes associated with any form of stress on the body
- Stimulating effect more pronounced with a background of fatigue and stress

Adrenal Adaptogen Formula

- Ashwagandha *Withania somnifera*
- Holy Basil *Ocimum sanctum*
- Rhodiola *Rhodiola rosea*
- Schisandra *Schisandra chinensis*
- Wild Oats *Avena sativa*
Strategies in Medical Herbalism

• Botanically work to enhance detoxification and waste removal.
  – This may involve the use of bitters, depuratives, cholagogues, choleretics and hepato-restoretative herbs.

• Secondly raise the vital energy and strengthen the systems with tonics, adaptogens, and circulatory stimulants.

• This level of treatment is more long term. One sees the health change at a slower rate and the effects are more sustained.
Single Herb Use

- History of use in most Herbal Traditions not broad.
- Use of single herbs is probably the most common use today by consumers.
- Most medical research is conducted on a single plant or group of chemicals from a plant for a specific condition.
- St. Johns Wort is an example of an herb that drove single herb use into popularity.
Formulas and Formulation

• A time tested tradition from TCM, Ayurveda, European and North American Herbalism
• Allows for the multifaceted approach to disease
• Avoid “kitchen sink” formulas and look to those that address the issue from a more comprehensive approach.
Breaking Down a Formula

- Constitutional understanding of each imbalance
- Physiomedical approach of rest, tonify, and stimulate built into each formula
- Understanding of the etiology of the imbalance
- Understanding of the energetics of the herbs in any given formulation
- Understanding of the influence that the taste properties of each herb brings into the formula
- Unwavering commitment to conviction that the formula will work for the patient

Supplement Facts

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<tr>
<td>Servings Per Container</td>
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<td>Amount per 2 capsules</td>
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<td>Calories</td>
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<td>TOTAL ALCOHOL FREE EXTRACTS:</td>
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<td>PROPRIETARY SYNERGISTIC EXTRACT BLEND:</td>
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Eleuthero root (Eleutherococcus senticosus), Wild Oats milky seed fresh (Avena sativa), Fo-Ti root (Polygonum multiflorum), Ginkgo leaf (Ginkgo biloba), Gotu Kola leaf (Centella asiatica), Peppermint herb (Mentha piperita), Rosemary leaf Supercritical CO₂ Extract (Rosmarinus officinalis)

†Daily Value not established.
Resources for Further Study and Research

Links for study and institutions:
• American Association of Naturopathic Physicians: http://www.naturopathic.org/
• American Botanical Council: http://abc.herbalgram.org/
• American Herbal Products Association: http://www.ahpa.org/
• Bastyr University: http://www.bastyr.edu/
• Henriette’s Herbal Homepage: http://www.henriettesherbal.com/
• Herb Research Foundation: http://www.herbs.org/herbnews/
• National College of Naturopathic Medicine: http://www.ncnm.edu/
• Oregon Tilth: http://tilth.org/
• Dr. Dukes Database (Phytochemical Database): http://www.ars-grin.gov/duke/
• PubMed (access to the National Library of Medicine Database): http://www.ncbi.nlm.nih.gov/pmc/
• Southwest College of Naturopathic Medicine: http://www.scnm.edu/
• University of Bridgeport: http://www.bridgeport.edu/

A few of my favorite books:
• Principles and Practice of Phytotherapy- Modern Herbal Medicine; Simon Mills and Kerry Bone.
• Healing with Whole Foods- Oriental Traditions and Modern Tradition: Paul Pitchford.
• The New Holistic Herbal; David Hoffman.
• Encyclopedia of Natural Healing for Children and Infants; Dr. Mary Bove.
Sign Up for Herbal Foundations Course!

This four module course is designed to give the participant a basic foundational knowledge of herbal medicine and its application to clinical therapeutics. Topics include: introduction to herbal medicine, herbal terminology, herbal preparations, therapeutic active constituents, herbal formulation and combinations, safety issues and concerns, along with therapeutic application of herbal concepts in the clinical setting.

Foundations of Herbal Medicine- Module 1
The Vital Force of Nature; Introduction to the Use of Herbal Medicines
April 7 at 4:00pm EST
Register here: http://bit.ly/19275cn

Foundations of Herbal Medicine- Module 2
Herbal Delivery Forms and Herbal Safety Concerns
April 21 at 4:00pm EST
Register here: http://bit.ly/1C9PxB5

Foundations of Herbal Medicine- Module 3
Meet the Active Constituents of Herbs; Phyto-Compounds
May 12 at 4:00pm EST
Register here: http://bit.ly/1C9Plxe

Foundations of Herbal Medicine- Module 4
Herbal Actions, Herbal Formulations, and Therapeutic Application
May 26 at 4:00pm EST
Register here: http://bit.ly/1zBHIYJ