

Game changing Botanical Medicines in Developmental Pediatrics

Presented By
Shehab El-Hashemy ND

A little about me

- Originally from Giza, Egypt
- MBChB grad 1995, took 3 months botanical pharmacognosy elective
- Moved to Thunder Bay then Toronto, Canada
- Attended Canadian College of Naturopathic Medicine 2000-2004
- 2-year residency in family medicine
- Recently moved to Portland, Oregon (Aug 2017)
- 13 years in Oshawa, Ontario (Canada) in the field of pediatrics in general, and specifically in developmental pediatrics, pediatric psychology, mind-Body medicine.
- Teaching experience in primary care, pathology, differential diagnosis, emergency medicine, Medical history, Naturopathic philosophy, counseling health psychology.

A little more about me

- Author of a couple of books, working on a third
- Father, some military experience, associate dean academic, Dean, attending, divemaster
- Passionate about the artful use of medical herbalism and phytotherapy
 - Early influences: Egyptian & Middle East Herbalism, German Phytotherapy, Rudolf Weiss, David Hoffman, Kerry Bone & Simon Mills, Uwaya Erdmann, Paul Saunders, John Redden +++
 - Later interests Indian, Chinese, First Nations Herbalism
- Owned and operated a profitable botanical dispensary (Tinctures, Teas, Powders & Salves)
 - most of my young patients were enthusiastically involved in the making of their own formulations!

Outline of my talk today

| | |
|------------|---|
| 15 minutes | Introduction, Concepts |
| 15 minutes | A mental health dispensary (Pantry) that will work for you |
| 60 minutes | Exemplar Conditions Archetypal Traditional formulations Evidence-informed Variations Drug Interactions |
| 15 Minutes | My Practice Pearls - Cooking with your clients Motivating young patients – it tastes awful Pharmacology of common Drugs |
| 15 Minutes | Q & A |



Legal Disclaimers conflict of interest?

I have no financial ties to botanical or supplement /drug industry

The information provided here is for education and enhancing competence of health professionals and for those interested in pediatrics and Botanical medicine.

As an ND in Oregon, my scope of practice allows for prescribing and by the same token adjust or De-prescribe medications in the course of treating a patient. Your scope of practice may be different. In this case I encourage you to network with a circle of care to cover those aspects.

The Information presented may and should challenge preconceptions and upheld beliefs. That how we all learn and grow. I learned early on that respectful discourse and conflict of ideas is a key ingredient in innovation.

Respect diversity of opinions, cultures and ways of doing things. Just because I practice different than you does not mean that one of is wrong and the other is great - no one authority or tradition has monopoly of healing.

The Joy of a Pediatric Practice Even in High Stakes



Introduction

Generally, I see medicinal plants as ingredients in a recipe - food with medicinal properties - an individualized recipe for improved wellbeing.

- So my analogies mostly relate to **cooking**.
- Influenced by **tradition** and informed by **evidence**.
- I have more experience with **long term** treatment
- I worry less about the **dose** of an ingredient, more about how the recipe comes together synergy (within reason).
- Some plants are **toxic** under certain circumstances (dose, **duration**), and some can **interact**, synergize or antagonize pharmaceutical **medications** - this is where I look up studies, trial, case reports
- I have seen severe reactions to some of my most innocuous herbal prescriptions.

Concepts

My grandmother Wedad was a great cook and folk herbalist. She taught me a thing or two about taste.

I stock ingredients of good quality that I anticipate to use often (tinctures, dried herbs, powders, salves).

I buy in bulk organic or wild crafted by local herbalists I know and trust.

Therapeutic range is usually wide - batches of herbal tinctures or even powdered dry herbs vary in potency - so as good a good cook I learned to taste everything and adapt.

Concepts

Since teaspoons, tablespoons, droppers vary widely - I ask my patients to buy a dropper with millimeter (ml) graduation and/or standard culinary measuring spoons

I prefer teas & slow cooked decoctions - I usually dispense 120 g of premixed dried herb or preferably powder (when I can get it)

- This will make about 2 litres (16 cups) of strong tea or decoction
- I instruct parents to steep or slow cook 30 g (1 oz) herb per 500 ml (20 oz) of water
- I usually prescribe $\frac{1}{4}$ - 1 cup twice daily (adult dose - more on children dosing later)

Concepts

Weight to Volume - my dried herb tinctures are all 1:5. The equivalent weight of the herb (marc)- let's say 100 g is diluted in 500 ml alcohol/water (menstruum). That's 6 parts total (1 part marc : 5 parts)

- So if I am prescribing 1 ml of tincture = 200 mg (roughly)
- If I am prescribing 20 milliliters per day of a 1:5 tincture of dried yarrow. My patient is taking the equivalent of $20/5 = 4$ g

Concepts

For children dosing I usually don't use Young's Rule as children weights can vary significantly, I prefer to use Clark's Rule

- $\text{Adult Dose} \times (\text{Weight of child in lbs} \div 150) = \text{Child's Dose}$

Example:

Sienna is a 11 year old girl / 70 Lbs, I want to adapt an adult dose of 10 ml tincture X twice per day

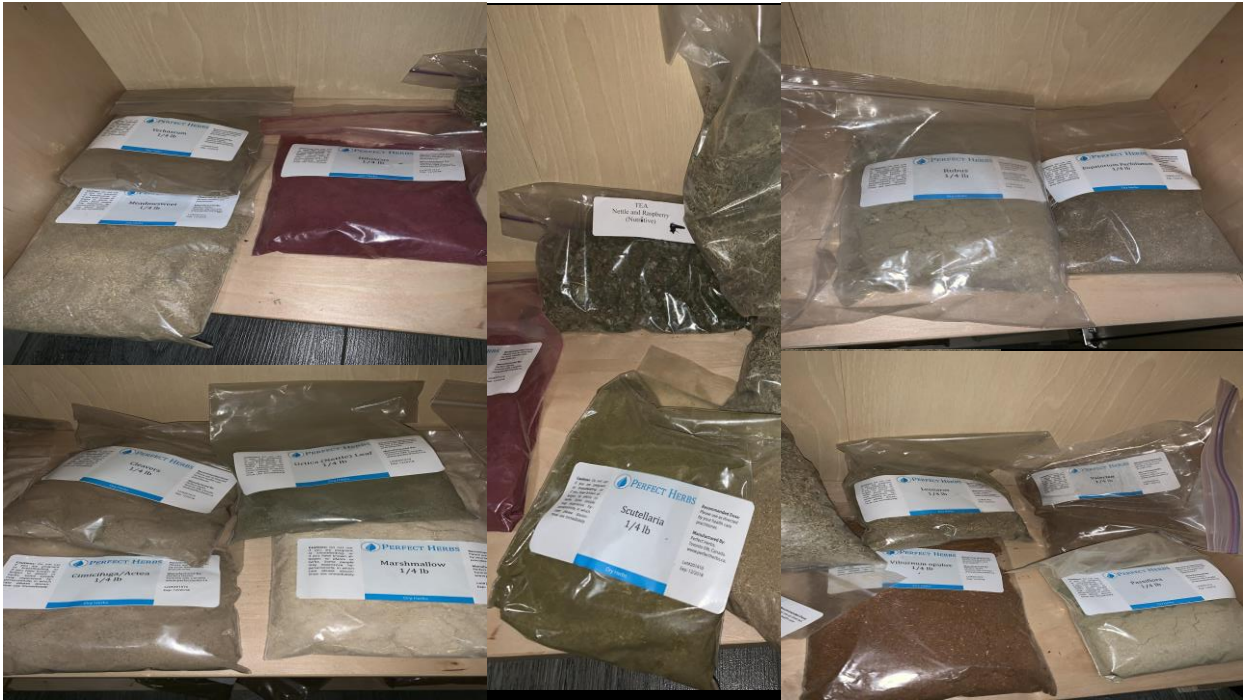
$$10\text{ml} \times (70 \div 150) = \text{Child's Dose}$$

$$10\text{ml} \times (.466) = 4.7\text{ml}$$

I would prescribe 4.5 ml twice per day of tincture for Sienna

A mental health dispensary (pantry) that will work for you





A mental health dispensary (Pantry) that will work for you (15)

Nepeta cataria (Catnip)

Bacopa monnieri (Bacopa)

Panax quinquefolius (American ginseng)

Withania somnifera
(Ashwagandha)

Passiflora incarnata (Passion Flower)

Hypericum perforatum (St. John's Wort)

German Chamomile (*Matricaria recutita*)

Ginkgo biloba (Ginkgo)

Lavandula angustifolia (Lavender)

Melissa officinalis (Lemon Balm)

Rhodiola rosea (Rhodiola)

Scutellaria lateriflora (Skullcap)

Valeriana officinalis (Valerian)

Cinnamomum aromaticum
(Cinnamon)

Glycyrrhiza glabra (Licorice root)

A mental health dispensary (Pantry) that will work for you (14)

Piper methysticum (Kava)

Pinus pinaster (Maritime Pine)

Crataegus oxyacantha (Hawthorn)

Eschscholzia californica (California Poppy)

Magnolia biondii (Magnolia)

Leonurus cardiaca (Motherwort)

Rauwolfia serpentina (Indian Snakeroot)

Crocus sativus (Saffron)

Curcuma longa (Turmeric)

Huperzine A (Chinese club moss)

Hibiscus sabdariffa (Hibiscus)

Schisandra chinensis (Schisandra)

Salvia officinalis (Sage)

Rosmarinus officinalis (Rosemary)

Exemplar Conditions

child exhibiting cognitive delay

the impulsive/inattentive child (ADHD)

the anxious child

the depressed child

child with substance-related or addictive disorder.

Cognitive Delay in Peds

Usually a concern by parents that one or more of the following is not at pace with similarly aged peers:

- Memory, attention, and learning.
- Cognitive tasks such as searching for letters, differentiating colors, operant conditioning, Attention, reaction time
- Verbal learning, immediate memory, and information processing
- Visual motor function
- Complex motor coordination
- Socialization and non-verbal interaction with others
- Imaginative play

Cognitive Delay in Peds

Diagnosis of organic cognitive developmental delay beyond the scope of this talk. Usually careful observation and age appropriate standard testing can reveal if the behaviour is within the spectrum of normal or abnormal cognitive delay. It can reveal if the issue is state dependant or pervasive. If this is not informative a specialist evaluation is required (psychoeducational testing).

My first task is reassurance when it's warranted, education regarding the normal variations in cognitive development, counselling parents on behavioural issues and committing for improving wellbeing and function no matter the etiology.

Cognitive Delay in Peds

In my clinic, I would say it's about 50% delay unexplained by organic factors and 50% abnormal the 50/50 the vast majority tend to be within the realm of normal cognitive delay.

Cognitive Delay in Peds

In my clinic, I would say about 40% falls within the realm of normal normal variant, 30% that falls outside but cannot be explained by organic factors and the rest relates to organic pathology.

I treat them all the same!

No matter the capacity of the individual it can be nurtured, challenged, developed in holistic manner that respects mind-body tenets

Bacopa monnieri (Brahmi)



Bacopa monnieri



Ayurvedic plant named "brahmi" after Lord Brahma, the mystical creator of the Hindu pantheon (Ayurveda and the universe).

In addition to its *medical* uses, bacopa has a place in *religious* and *social* practices in India.

Also known as: Andri, Bacopa, Brahmi, Herb of Grace, Herpestis Herb, Hysope d'Eau, Indian Pennywort, Jalamimba, Jal-Brahmi, Jalnaveri, Nira-Brahmi, Sambrani Chettu, Thyme-Leaved Gratiola, Water Hyssop.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=761>

Bacopa monnieri - traditional uses



Used traditionally for Alzheimer's disease, anxiety, cognitive impairment and memory loss, attention deficit-hyperactivity disorder (ADHD), allergies, and irritable bowel syndrome (IBS).

Bacopa has also been used orally for low back pain, hoarseness, mental illness, epilepsy, rheumatism, sexual dysfunction in both men and women, and as a general "nerve tonic or "adaptogen" for fighting stress," "cardiotonic," and as a diuretic.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=761>

Bacopa monnieri - controlled trials



Trials show safety in adults and children 6-12 years for periods of 12 weeks to 6 months

- **ADHD** - 200-300 mg daily for 6 months > 20% reduction restlessness, impulsivity, learning problems, and deficit of attention
- **Adult Cognitive function** - 300-450 mg daily for 12 weeks > verbal learning, memory, and information processing in healthy men, significantly improves measures of verbal learning, memory, and retention in senior adults
- **Child Cognitive function** - 350 mg or 1 tsp of dried bacopa plant extracted in a syrup three times daily for 3 months improved visual motor function and immediate memory. Oh and one (320-640 mg) dose doesn't seem to work.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=761>

Bacopa monnieri - controlled trials



- **Anxiety** - 15 mL of syrup 2 times per day 4 weeks < nervousness, palpitations, insomnia, headache, lack of concentration, fatigue, anorexia, tremors, dyspepsia/flatulence, and irritability in patients with anxiety compared to baseline.
- **Epilepsy** - 2 oz aqueous bacopa daily for 5 months OR alcoholic Bacopa extract 2-4 mg/kg body weight daily for 5 months < reduce the incidence of seizures in some patients with epilepsy.
- **Irritable bowel syndrome (IBS)**. Bacopa appears to be no more effective than placebo in preventing relapse of IBS.

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=761>

Bacopa monnieri - Drug interactions



- No absolute contraindications
- Seems to Increase acetylcholine levels + moderately and non-competitively inhibit cytochrome P450
- (Level D theoretical) Caution with
 - **ACETYLCHOLINESTERASE (AChE) INHIBITORS** - donepezil (Aricept), edrophonium (Enlon, Reversol, Tensilon), neostigmine (Prostigmin), physostigmine (Antilirium), pyridostigmine (Mestinon, Regonol)
 - **ANTICHOLINERGIC DRUGS** - atropine, benztropine (Cogentin), biperiden (Akineton), procyclidine (Kemadrin), and trihexyphenidyl (Artane).

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=761>

Drug interactions - My approach

When it comes to drug interaction literacy with levels of evidence can mean the difference between avoiding something when it's actually useful, or using something that is truly harmful despite consensus of traditional practices.

Levels A & B relate to clinical trials profiling the interaction - good or bad

Levels C & D are anecdotal or theoretical or animal - because or this therefore that

Where there is long history of traditional use, I use the WHO guideline for traditional medicines and ignore C & D - that is evidence informed practice.

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Bacopa monnieri - Drug interactions



- (Level D theoretical) Caution with CYTOCHROME P450 substrates
 - (CYP1A2) SUBSTRATES - Ex. clozapine (Clozaril), cyclobenzaprine (Flexeril), fluvoxamine (Luvox), imipramine (Tofranil), olanzapine (Zyprexa).
 - 2C19 (CYP2C19) SUBSTRATES - Ex. amitriptyline (Elavil), carisoprodol (Soma), citalopram (Celexa), diazepam (Valium), lansoprazole (Prevacid), omeprazole (Prilosec), phenytoin (Dilantin), warfarin
 - 2C9 (CYP2C9) SUBSTRATES - Ex. celecoxib (Celebrex), diclofenac (Voltaren), fluvastatin (Lescol), glipizide (Glucotrol), ibuprofen (Advil, Motrin), irbesartan (Avapro), losartan (Cozaar), phenytoin (Dilantin), tamoxifen (Nolvadex).
 - 3A4 (CYP3A4) SUBSTRATES - Ex calcium channel blockers (diltiazem, nifedipine, verapamil), chemotherapeutic agents (etoposide, paclitaxel, vinblastine, vincristine, vindesine), antifungals (ketoconazole, itraconazole).

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=761>

Pinus pinaster | Maritime Pine



Maritime pine (pine bark) is a species of pine tree native to Mediterranean countries

Traditional uses are many. Orally cultures have used for everything from diabetic microangiopathy, allergies, asthma, hypertension, tinnitus, muscle soreness, leg cramps, age-related muscle loss, pain, osteoarthritis, diabetes, diabetic foot ulcers to attention deficit-hyperactivity disorder (ADHD), improving cognitive function.

Topically, it is used for treating diabetic foot ulcers, hemorrhoids, chemotherapy-related oral mucositis, and as a component of "anti-aging" creams.

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=1019>

Maritime Pine - Controlled trials



Trials show safety in adults and children 6-18 years for periods of 3-12 months

Cognitive function - 100-150 mg extract daily for 3-12 months > global cognitive function and memory compared to placebo or no treatment in healthy adults

Attention deficit-hyperactivity disorder (ADHD). 1 mg/kg daily for one month > improve attention and hyperactivity when compared with placebo

Cognitive impairment. 150 mg daily for 8 weeks > global cognitive function in adults with mild cognitive impairment

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=1019>

Maritime Pine - Controlled trials



Also Support claims of efficacy in

Allergic Rhinitis, Asthma, Athletic performance, chronic venous insufficiency, Retinopathy, IBS, age related muscle loss

Even common cold, CAD, DVT, Diabetes, Diabetic ulcers - ok a lot!

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=1019>

Maritime Pine - Drug interactions



No absolute contraindications

Level I B - ANTIDIABETES DRUGS - but the interaction is “positive”

Level D - ANTICOAGULANT/ANTIPLATELET DRUGS
IMMUNOSUPPRESSANT

Take home: You can use it - just be cautious.

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=1019>

Magnolia biondii - Magnolia



Magnolia is sometimes referred to as Chuan houpu because it originated from the Sichuan region of China

distributed throughout temperate and tropical regions of Asia, North America, and South America.

The bark and flowers are used as medicine.

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=188>

Magnolia biondii - Magnolia



Traditionally magnolia is used for digestive disorders, constipation, inflammation, and to promote sweating. It is also used for menopausal symptoms, diabetes, hyperlipidemia, weight loss and obesity, anxiety, stress, depression, fever, headache, stroke, and asthma.

Magnolia flower bud is used orally for nasal congestion, runny nose, common cold, sinusitis, allergic rhinitis, headache, and facial dark spots.

Topically, Magnolia flower bud is used for toothaches. Magnolia extract has also been used in chewing gum and dentifrice for plaque and gingivitis.

<https://naturalmedicines.therapeuticresearch.com/databases/food,-herbs-supplements/professional.aspx?productid=188>

Magnolia biondii - Magnolia



Trials show safety in adults for periods of 1-12 months

Gingivitis & Dental caries - gum and toothpaste > gum health and < plaque

Anxiety - proprietary blend of magnolia and *Phellodendron* bark extract (Relora, Next Pharmaceuticals) 250 mg three times daily for 6 weeks < stress-induced anxiety in females.

Stress - proprietary blend of magnolia and *Phellodendron* bark extract (Relora, Next Pharmaceuticals) 250 mg twice daily for 4 weeks > overall mood and decreases stress compared to placebo in patients with moderate levels of psychological stress.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=188>

Magnolia biondii - Magnolia



No absolute contraindications

Level D - BENZODIAZEPINES

CNS DEPRESSANTS

Take home message: You can use it - it can reduce reliance on those - just be cautious.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=188>

Hypericum perforatum- St. John's Wort



Familiar plant to everyone.

It interacts with everything so cautions and contraindications abide.

I use it as adjunct and alternative in anxiety and depression - low and slow dose.

Used for weaning & tapering off SSRI medications.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=188>

Hypericum perforatum- St. John's Wort



Trials show safety in adults and children 6-17 for periods of 3-6 months

Depression and/or Anxiety - 300-1800 mg daily safe & effective for depression in children > mood, decreases anxiety and somatic symptoms, and decreases insomnia related to mild to severe major depression

- Clinical guidelines from the American College of Physicians - encourages use with conventional antidepressants for short-term treatment of mild depression, but watch for interaction with other drugs.
- the overwhelming majority of evidence in primary care settings shows that St. John's wort is effective for most patients

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=188>

Hypericum perforatum- St. John's Wort



Trials also support use in

Menopausal symptoms - alone and with Black cohosh < hot flashes and global feelings of wellbeing

Somatization disorder - 600 mg daily for 6 weeks < symptoms of somatization disorder by 45% after 6 weeks

Wound healing - topical

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=329>

Hypericum perforatum- St. John's Wort



Absolute contraindications exist

Level B - ALPRAZOLAM (Xanax) decreases effect (clears it via liver enzymes)

CYCLOSPORINE (Neoral, Sandimmune);

CONTRACEPTIVE DRUGS - Women taking St. John's wort and oral contraceptives concurrently should use an additional or alternative form of birth control.

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES - Clinically significant interactions have been reported so check the individual medications.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=329>

Hypericum perforatum- St. John's Wort



The take home message is that if the patient is not on pharmaceutical medications this is safe and effective approach.

For those who are on medications, don't use unless prescriber is ready to embark on dose adjustments relative to clinical and therapeutic drug monitoring .

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=329>

Passiflora incarnata - Passion Flower



Trial evidence shows safety in adults and children 6-13 years old for periods of 8 weeks and longer

Anxiety - 400 mg orally twice daily for 2-8 weeks < severity of non-specific anxiety. Some research has also compared passion flower with conventional medications used to treat anxiety (slower to act though).

Attention deficit-hyperactivity disorder (ADHD) - 0.5 mg per kilogram body weight twice daily for 8 week in children aged 6-13 years with ADHD - < and teacher ratings of ADHD symptoms similarly to a low dose of methylphenidate

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=871>

Passiflora incarnata - Passion Flower



Trials also support use in:

Insomnia - tea & tablets with valerian and hops - passion flower 80 mg, valerian 300 mg, and hops 30 mg at bedtime for 2 weeks > subjective measures of sleep similarly to zolpidem 10 mg nightly in people with primary insomnia.

Opioid withdrawal - Passionflower liquid extract 60 drops, in combination with clonidine 0.8 mg daily, better than clonidine alone < anxiety, irritability, insomnia, and agitation that occur during an inpatient withdrawal program for opioid addiction.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=871>

Rhodiola rosea - Rhodiola



Traditionally Rhodiola is used for increasing energy, stamina, strength, and mental capacity; an "adaptogen" to help the body adapt to and resist physical, chemical, and environmental stress.

It is also used for improving athletic performance, depression, anxiety, cardiac disorders such as arrhythmias, and hyperlipidemia. Rhodiola is also used for treating cancer, tuberculosis, and diabetes; preventing cold and flu, aging, and liver damage; enhancing immunity; and shortening recovery time after prolonged workouts.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=883>

Rhodiola rosea - Rhodiola



Trials establish safety and efficacy in adults for durations of 6-10 weeks

Depression - 340 mg twice daily for 6 weeks, significantly < symptoms of mild-to-moderate depression. < overall depressive symptoms, emotional instability, insomnia, and somatization. .

Generalized anxiety disorder (GAD) - 170 mg twice daily for 10 weeks < anxiety and depression and improves symptom scores.

Life Stress - 200 mg twice daily for 4 weeks < stress symptoms, disability, functional impairment

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=883>

Ginkgo biloba - Ginkgo



Traditionally used for dementia, including Alzheimer's, vascular, and mixed dementia. Ginkgo leaf is also used orally for conditions associated with cerebral vascular insufficiency, especially in the elderly, including memory loss, headache, tinnitus, vertigo, dizziness, difficulty concentrating, mood disturbances, and hearing disorders.

It is also used in cognitive dysfunction, depression and cognitive disorders secondary to depression; attention deficit-hyperactivity disorder (ADHD); and autism.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>

Ginkgo biloba - Ginkgo



Trials establish safety and efficacy in adults and children 3-17 years of age for durations of 4-12 weeks

Anxiety (GAD and Adjustment disorder) - 480 mg daily for 4 weeks < global symptoms of anxiety and anxious mood

Autism - no effect

Cocaine dependence - does not help

Cognitive function - 120-240 mg daily for up to 12 weeks > short and long term memory, attention based tasks, speed of information processing, executive function, immediate and delayed recall, and recognition

Combined with ginseng shows better results

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>

Ginkgo biloba - Ginkgo



ADHD - 80-120 mg daily for 6 weeks was less effective than methylphenidate 20-30 mg/day in children aged 6-14 years with newly-diagnosed ADHD.

However, there is evidence that taking a specific combination product (AD-fX, CV Technologies) containing ginkgo leaf extract, in combination with American ginseng, might significantly < ADHD symptoms such as anxiety, hyperactivity, and impulsivity in children aged 3-17 years.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>

Gingko biloba - Gingko



Absolute contraindications don't exist and cautions exist with almost every drug class so check and recheck!

Level B caution - Talinolol (increases drug amount by 36% in healthy males)

Level D caution - Anticoagulants - use cautiously and monitor objective parameters

Seizure threshold lowering - anecdotal

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>

Huperzia serrata - Chinese Club Moss



Not club moss! Only this one contains Huperzine A which seems to be the magical ingredient

Traditionally, Chinese club moss is used for Alzheimer's disease and other types of dementia, memory and learning enhancement, age-related memory impairment, schizophrenia, cocaine dependence, depression, increasing alertness and energy, protection from neurotoxic agents including organophosphate nerve gases.

You can purchase Huperzine A (extract) powder add to formulations

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>



Huperzin A - Chinese Club Moss

Trials show efficacy and safety in adult for durations up to 36 weeks

Dementia - 100-800 mcg daily multiple clinical trials show > memory, cognitive function, and behavioral function when taken for up to 36 weeks in patients with Alzheimer's disease, vascular dementia . Mood and activities of daily living also seem to improve with use of huperzine A.

Memory - 100-300 mcg daily for 4-6 weeks in children of Chinese middle school children exhibiting poor memory showed significant improvement in memory quotient scores after taking huperzine A for 4 weeks compared to placebo

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>



Huperzin A - Chinese Club Moss

Cognitive impairment. in adults with mild cognitive impairment, 200 mcg orally daily, in combination with conventional therapy, for 12 weeks improves correct recall and recognition compared with conventional therapy alone.

Depression. 100-300 mcg daily for 6 weeks in children 16 years old in combination with antidepressant treatment improves cognitive functioning, based on the Wisconsin Card Sorting Test and the Wechsler Memory Scale-Revised (WMS-R). There also seem to be benefits of huperzine A treatment on quality of life.

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>



Huperzin A - Chinese Club Moss

Cocaine dependance - A 400-800 mcg daily for 9 days shows promise

No absolute contraindications

Just caution with anticholinergic drugs (the good kind of interaction, it helps them work - and may lead to less dependance).

<https://naturalmedicines.therapeuticresearch.com/databases/food.-herbs-supplements/professional.aspx?productid=333>

Exemplar Conditions

child exhibiting cognitive delay

the impulsive/inattentive child (ADHD)

the anxious child

the depressed child

child with substance-related or addictive disorder

Cognitive delay in a child - this is my basic formula that you can individualize

| | | |
|----------------------|----------------|--|
| Bacopa | 2 parts | For a 250ml Tincture dispensed |
| Maritime Pine | 1 part | Each part will be = 250/12 approx 20ml (for 100 ml, 8ml) |
| Gingko | 1 part | |
| Ashwagandha | 2 parts | • Sig 5 mls twice per day (2 g) |
| Chamomile | 2 parts | For a 120 gram dried or powdered |
| Cinnamon | 2 parts | Each part will be = 120/12 approx 10 g (for 250 g, 20 g) |
| Licorice | 2 parts | • Sig ¼ cup per day (7.5 g) |

Cognitive delay in a child - other considerations

Mind body

Physical activity

Spending active time

Limit screen time

Rough and tumble

Socialize

Enjoy

+ Add on supplement - Chinese club moss Huperzine A 100 mcg twice per day

+ Fish oil or vegan Omega 3 (Algae based)

ADHD and conduct disorders

- my basic formula that you can individualize

| | | |
|-------------------------|----------------|-----------------------------------|
| Bacopa | 2 parts | For a 250ml Tincture dispensed |
| Maritime Pine | 1 part | Each part will be = 250/12 approx |
| Gingko | 1 part | 20ml (for 100 ml, 8ml) |
| Rhodiola | 2 parts | • Sig 5 mls twice per day (2 g) |
| Passion Flower | 1 Part | |
| Ashwagandha | 2 parts | For a 120 gram dried or powdered |
| American Ginseng | 1 part | Each part will be = 120/12 approx |
| Cinnamon | 2 parts | 10 g (for 250 g, 20 g) |
| | | • Sig ¼ cup per day (7.5 g) |

ADHD and conduct disorders other considerations

Mind body

Physical activity

Spending active time

Limit screen time

Rough and tumble

Socialize

Enjoy

+ Add on supplement - Chinese club moss Huperzine A 100 mcg twice per day

+ Fish oil or vegan Omega 3 (Algae based)

The clinically anxious and or depressed child - my basic formula that you can individualize

| | | |
|-----------------------|----------------|---|
| Magnolia | 2 parts | For a 250ml Tincture dispensed |
| Passion Flower | 2 parts | Each part will be = 250/12 approx 20ml (for 100 ml, 8ml) |
| St John's Wort | 1 part | |
| Gingko | 2 parts | • Sig 5 mls twice per day (2 g) |
| Rhodiola | 2 parts | |
| Scutellaria | 1 part | For a 120 gram dried or powdered |
| Lavender | 1 part | Each part will be = 120/12 approx 10 g (for 250 g, 20 g) |
| Cinnamon | 1 part | • Sig ¼ cup per day (7.5 g) |

The anxious and or depressed child - other considerations

Mind body

Physical activity

Spending active time

Limit screen time

Rough and tumble

Socialize

Enjoy

+ Add on supplement - Chinese club moss Huperzine A 100 mcg twice per day

+ Fish oil or vegan Omega 3 (Algae based)

Cooking with your young clients

First of all, it's fun.

We offer to take them to the herbal "pantry" and show them how we are cooking.

The help with the pouring and measuring (if they can) and sticking the label.

They ask questions and are interested.

This is part of the visit time – it's high-quality counselling.

Motivating young patients – it tastes awful

I never assume that they will like the taste - even when its an ok tasting formula (taste buds are more sensitive and trust is hard to regain when lost).

I tell them that herbal medications often tastes bitter and that I need their help to make taste marginally better.

I ask them about the taste preference - e.g., licorice or cinnamon.

For tinctures you can add USP glycerin to add sweet, for teas honey.

Pastas, curries, vinegar salad dressing, maybe applesauce.

Don't mix with their their favourite food - offer as reward after.

My Practice Pearls

Treat children like adults.

Talk openly and frankly about how long treatment will likely take.

Make eye contact, ask for their consent, answer their questions.

I tell the parents discreetly that I may ignore them intentionally so that the child doesn't defer to them.

Tell the parents that you want to interact with the child in an open but quiet space - ask them to "pretend leave" for a bit.

Always book the next 2 follow-ups for chronic cases - Provider wants to see you on such and such dates times.

My Practice Pearls

Anticipate that things will not go smoothly, have parents as allies.

Ask children for ideas on how to problem solve when those anticipated compliance issues happen (you will not plant the idea in their head).

Ask explicitly about suicide, self harm, bullying (you will not plant the idea in their head).

Be a good counsellor - often that is the real job. You don't know how it feels - this is not about you!

Children can be stubborn, this is good thing. You are smart, also a good thing.

Pharmacology Considerations - know what you patient is on or wants to avoid

Psychostimulants - Methylphenidate-Based Methylphenidate, Biphentin, Ritalin, Concerta, Foquest

Amphetamine-based Dexedrine, Adderall XR, Vyvanse

Indications: ADHD

Side effects:

Common usually transient - anorexia, insomnia, weight loss, irritability, weepiness, headaches abdominal pain

Indications to stop - Zombie like, psychotic reactions, agitation, growth failure, rebound hyperactivity, blood changes

Pharmacology Considerations - know what you patient is on or wants to avoid

Side effects:

Overdose symptoms - **dose reduction needed** - glassy eyes, insomnia, hyperactivity

Rare and severe - sudden cardiac death, exacerbation of tics, neurologic symptoms, arrhythmias, acute psychotic episodes, hyperthyroidism, seizures or worsening of seizures.

Comments: contraindicated with MAOIs, reduces metabolism of Warfarin (M); acidic fruit juices, or ascorbic acid < absorption and > elimination of Dexedrine, alkalinizing agents (sodium bicarb) > absorption and < elimination of Dexedrine

Pharmacology Considerations - know what you patient is on or wants to avoid

Non Psychostimulant - Selective Norepinephrine Reuptake Inhibitor (SNRI)

Strattera (Atomoxetine), Venlafaxine (Effexor)

Indications: ADHD

Side effects: Major (S)- Suicide ideation sudden cardiac death, liver toxicity, exacerbation of tics Minor - Headaches, abdominal pain, nausea, sedation, emotional lability. (V) Nausea, drowsiness, nervousness, dizziness, dry mouth, high blood pressure

Pharmacology Considerations - know what you patient is on or wants to avoid

Non Psychostimulant - Selective Norepinephrine Reuptake Inhibitor (SNRI)

Strattera (Atomoxetine), Venlafaxine (Effexor)

Comments: Inhibitors of CYP2D6 or CYP3A4 may increase blood levels, caution with other serotonergic drugs (St John Wort), contraindicated with MAOIs

Pharmacology Considerations - know what you patient is on or wants to avoid

Non Psychostimulant - Selective Alpha-2A Adrenergic Receptor Agonist (α -2A adrenergic agonists)

Guanfacine (Intuniv, Tenex), Clonidine (Catapres, Kapvay)

Indications: ADHD

Side effects: hypotension, sedation, dizziness, dry mouth exacerbation of depression (C), somnolence, fatigue, headache, upper abdominal pain, bradycardia, hypotension (G)

Comments: caution with depression, during and after discontinuation monitor blood pressure and heart rate, inhibitors of CYP3A4 will increase levels (G)

Pharmacology Considerations - know what you patient is on or wants to avoid

3. Selective Serotonin Reuptake Inhibitors (SSRI)

Sertraline (Zoloft), Escitalopram (Cipralex, Lexapro), many

Indications: Depression and Anxiety

Side effects variable: Nausea, Tremors, Diarrhea, somnolence, dry mouth, sexual dysfunction, increased risk of GI bleed - **Discontinuation syndrome** (S)

Considerations: all SSRIs inhibit P450 enzymes, contraindicated with MAOIs (Nardil, Parmate, Manerix)

Pharmacology Considerations - know what you patient is on or wants to avoid

4+5. Dual action antidepressants - Noradrenergic and Serotonergic Specific Antidepressant (NaSSA), Noradrenaline dopamine reuptake inhibitor (NDRI)

Mirtazapine (Remeron), Bupropion (Wellbutrin), Trazodone

Indications: Depression/Anxiety (mostly depression)

Adverse reactions: agitation, insomnia, anorexia (B); weight gain sedation (M); drowsiness, nausea, headache, dry mouth, priapism (T)

Contraindications: not to be used with MAOIs - serotonin syndrome - tremor, agitation, hypomania, hyperthermia or hypertension

May potentiate other CNS depressants, sedatives, alcohol (M,T)

Pharmacology Considerations - know what you patient is on or wants to avoid

6. Second Generation Antipsychotics (SGAs)

Quetiapine (Seroquel), Risperidone (Risperdal)

Indications: GAD, ADHD

Adverse effects: many, common Sedation, dizziness, weight gain, increased risk of diabetes/dyslipidemia, movement disorders, may lower thyroid

Drug interactions: Inhibitors of CYP3A4 or CYP2D6 may increase levels, additive sedation with CNS depressants

Comments: used alone or to augment therapy to SSRI, SNRIs in GAD

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