



ADHD is not an excuse.
It is an **explanation.**

Understanding Pharmaceutical and Natural Treatments for ADHD

About me

- Naturopathic physician (ND)
- Specialize in helping adults, children, and families manage ADHD and anxiety
- Private practice in both Seattle and Issaquah
- Began education at medical (MD) school in Detroit, switched to attend Bastyr University
- Published research scientist- sleep medicine
- Background in laboratory medicine, medical education, medical writing, pharma
- Spouse and mother of some amazing people with ADHD



Disclaimer

The information contained in this presentation is provided for educational purposes only. Always seek the advice of your physician or other qualified healthcare provider before starting any new treatment or discontinuing an existing treatment.

Talk with your healthcare provider about any questions you may have regarding a medical condition or your treatment plan. Nothing contained in this presentation is intended to be used for medical diagnosis or treatment, and should not be used as a substitute for advice and recommendations from your physician.

Understanding the ADHD brain (sort of)

What is different in ADHD brains?

Areas affected:

- Frontal cortex (attention, organization, executive function)
- Limbic system (emotions, attention)
- Basal ganglia and reticular activating system (info to, from, within brain)

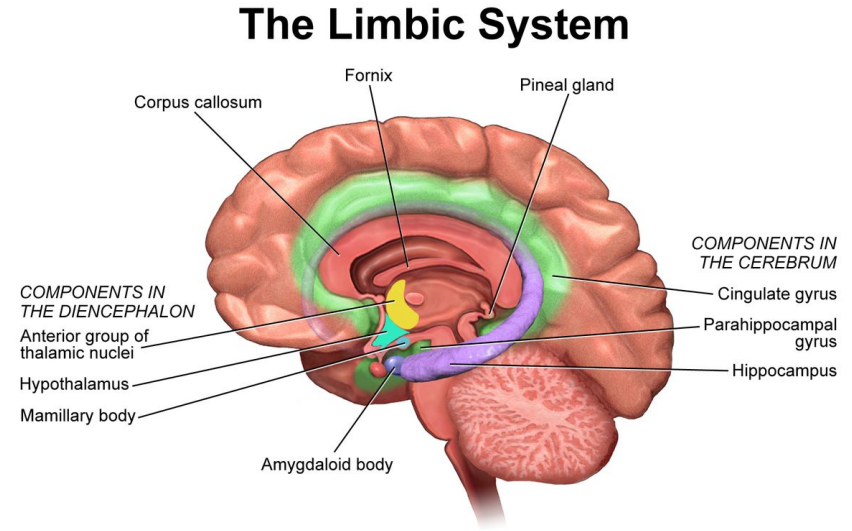


Image courtesy of Wikimedia Commons

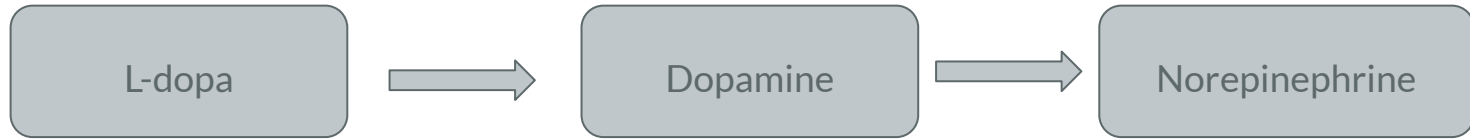
What is different in ADHD brains?

Functionality: under-activations of some pathways, overactivations of others

Structure: thickness of cortex, brain volume, gray matter, white matter

Neurotransmitters: low dopamine and norepinephrine, others?

Neurotransmitter relationship



Neurotransmitters

Dopamine

- reward and pleasure
- reward-motivated behavior

Norepinephrine

- arousal/alertness
- forming and retrieving memories
- promotes vigilance
- focuses attention
- increases restlessness and anxiety

Theories

Not enough dopa/norepi

Dopa/norepi disappears too quickly

Receptors for dopa/norepi aren't sensitive

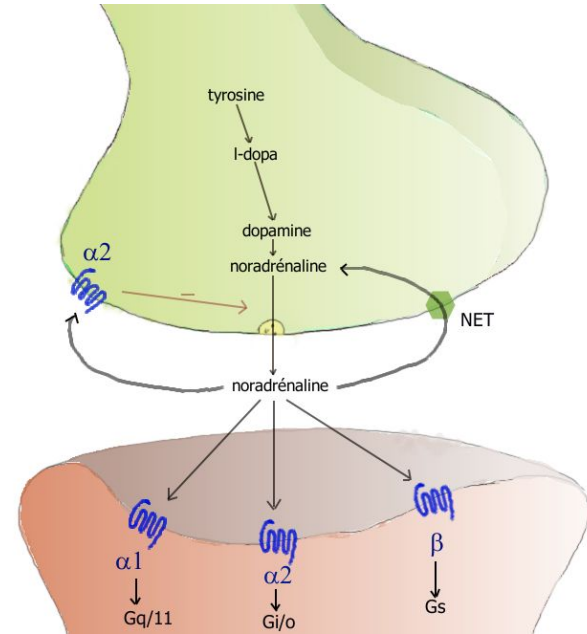


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Treating ADHD: Pharmaceuticals

Theories

Make more dopa/norepi

Keep dopa/norepi around active area longer

Slow the breakdown of dopa/norepi

Stimulate the dopa/norepi receptors

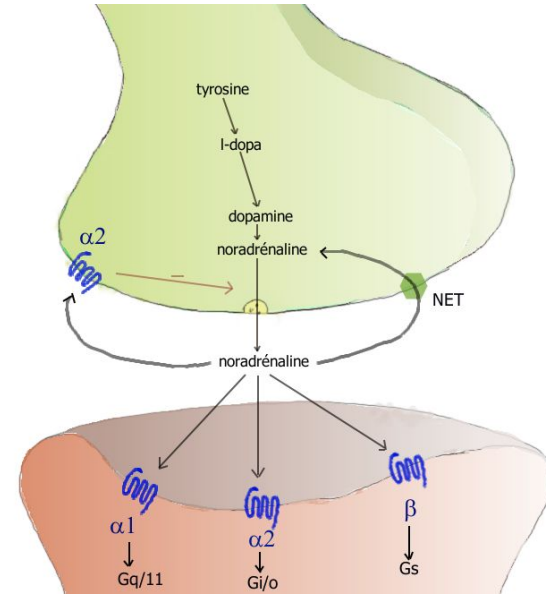


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Pharmaceuticals for ADHD

A large, rounded square with a red-to-pink gradient fill and a thin black border. The word "Stimulants" is centered in a dark gray, sans-serif font.

Stimulants

A large, rounded square with a gray-to-blue gradient fill and a thin black border. The word "Nonstimulants" is centered in a dark gray, sans-serif font.

Nonstimulants

<https://www.additudemag.com/adhd-medications-list-chart-stimulants-nonstimulants/>

Stimulants for ADHD

Methylphenidate

- Concerta, Metadate, Daytrana, Quillichew, Ritalin
- Dexmethylphenidate (Focalin)

Amphetamines

- Dextroamphetamine (Dexedrine)
- Mixed amphetamine salts (Adderall, Mydayis)
- Lisdexamfetamine (Vyvanse)
- Amphetamine (Adzenys)

Differences between stimulants

Length of effect

- IR, ER (intermediate- and long-acting)

Mechanism of extended release

Mechanism of absorption

- chewable, patch, liquid

Molecular shape

Stimulants- Possible side effects

Sleep problems (insomnia)

Appetite loss

Headache

Abdominal pain/stomach upset

Diarrhea

Heart palpitations

Anxiety

Irritability

Dry Mouth

Dizziness

Increased blood pressure

Tics

Nonstimulants for ADHD

Atomoxetine (Strattera)

Guanfacine (Intuniv)

Clonidine (Kapvay)

Bupropion (Wellbutrin)

Nonstimulants- drawbacks

Efficacy

Time of onset- approx 5 days to go into effect; can take 6-8 weeks to see full benefit

Withdrawing

Nonstimulants- side effects

Nausea/stomachaches

Decreased appetite

Fatigue/drowsiness

Mood swings

Needs for medication adjustments

Sleep

Stress

Hormonal changes

Metabolism

Nutrition

Blood sugar variations

Inflammation/illness

Other medications

My clinical experience

Why bother with anything else?

Don't help

Significant side effects

Don't help enough

Effective dose → sig. side effects

Other medical conditions interfere

Concern/fear

Pharmaceuticals are **ONE** tool...

You're going to need
a toolbox

Natural Treatment Options

Foundational support

Supporting neurons/cell membranes

Supporting cell signaling and enzymatic reactions

Correcting deficiencies

Omegas

Play essential role in structure, synthesis, and functions of neurotransmitters

Regulators of brain's communication, cell structure, and neuroinflammation

EPA and DHA are protective to neurons

Omega-3 deficiencies can alter neurotransmitter systems (dopamine)

“Essential” = need to get from diet

Omegas

Research

- Somewhat contradictory; not standardized
- Possibly 40% as effective as stimulants for relieving ADHD symptoms
- ADHD patients have lower levels of Omega fatty acids

Dosing

- EPA:DHA=2:1 or 3:1
- 1200 mg or more

Vitamin D

Children with ADHD have lower levels of vitamin D

Expectant mothers with low vitamin D → higher likelihood of their children having ADHD

Has effect on neurotransmitter levels

Iron

Crucial for normal brain function

Affects dopamine synthesis

Plays role in dopamine receptor density

ADHD children more likely to be iron deficient

Treating with supplemental iron can improve ADHD symptoms

Magnesium

Deficiency more common in ADHD

May calm hyperactivity and agitation

Various forms available: citrate, threonate, carbonate, glycinate

Phosphatidylserine

Improves symptoms of ADHD

- Attention
- Learning
- Hyperactivity-impulsivity
- Short-term memory

Affects cortisol levels

Zinc

Reduction in ADHD symptoms

Important to use caution- too much can cause problems

Zinc deficiency may reduce effectiveness of stimulants (esp. high BMI)

Nearly 40 percent reduction in the amount of the stimulant required to function at optimal levels

Tyrosine



Others

Pyridoxine (B6)

- particularly with low blood serotonin levels
- helps improve blood cell level of magnesium
- necessary for the conversion of DOPA into dopamine

Inositol- helps to counter agitation and anxiety

Dimethylethanolamine (DMAE)- production of acetylcholine

Herbs

Ginkgo biloba

American ginseng

Bacopa

Gotu Kola

Scutellaria/skullcap

Melissa officinalis/lemonbalm

Pycnogenol/maritime pine bark

Rhodiola

Calming herbs

- Avena sativa
- Lavender
- Passiflora/passionflower
- Nepeta/catnip

Important points

Brand of supplement matters

Distributor of supplement matters

Dosage of supplement matters

Other

Exercise

Mindfulness

Food sensitivities

Treating anxiety

Treating sleep issues

Balancing blood sugar

Coaching

Final thoughts

Brain always changing and not well understood

Results may vary

Self-medication

Monitor changes with questionnaire

Thank You

www.ADHDdetails.com