

ADHD Overview

Home Educators Expo.

April 8, 2016

Jim Russell Ph.D., N.C.C., L.P.C.

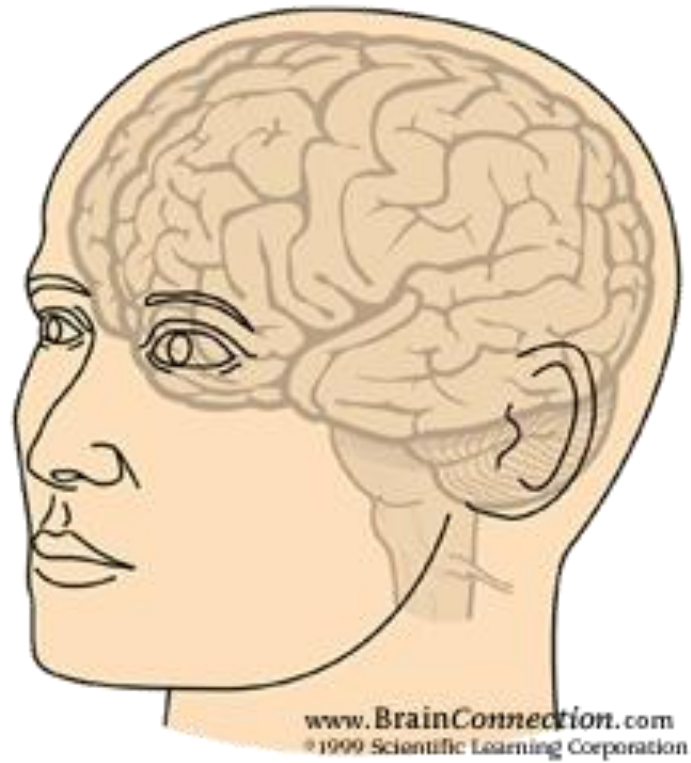
For the power point go to:

<http://www.jimrussellphd.com>

Learning Objectives

- Description of ADHD (ADD)
- Using the DSM-5 to identify ADHD
- Introducing Concentration Deficits Disorder (CDD)
- Understanding ADHD Medications

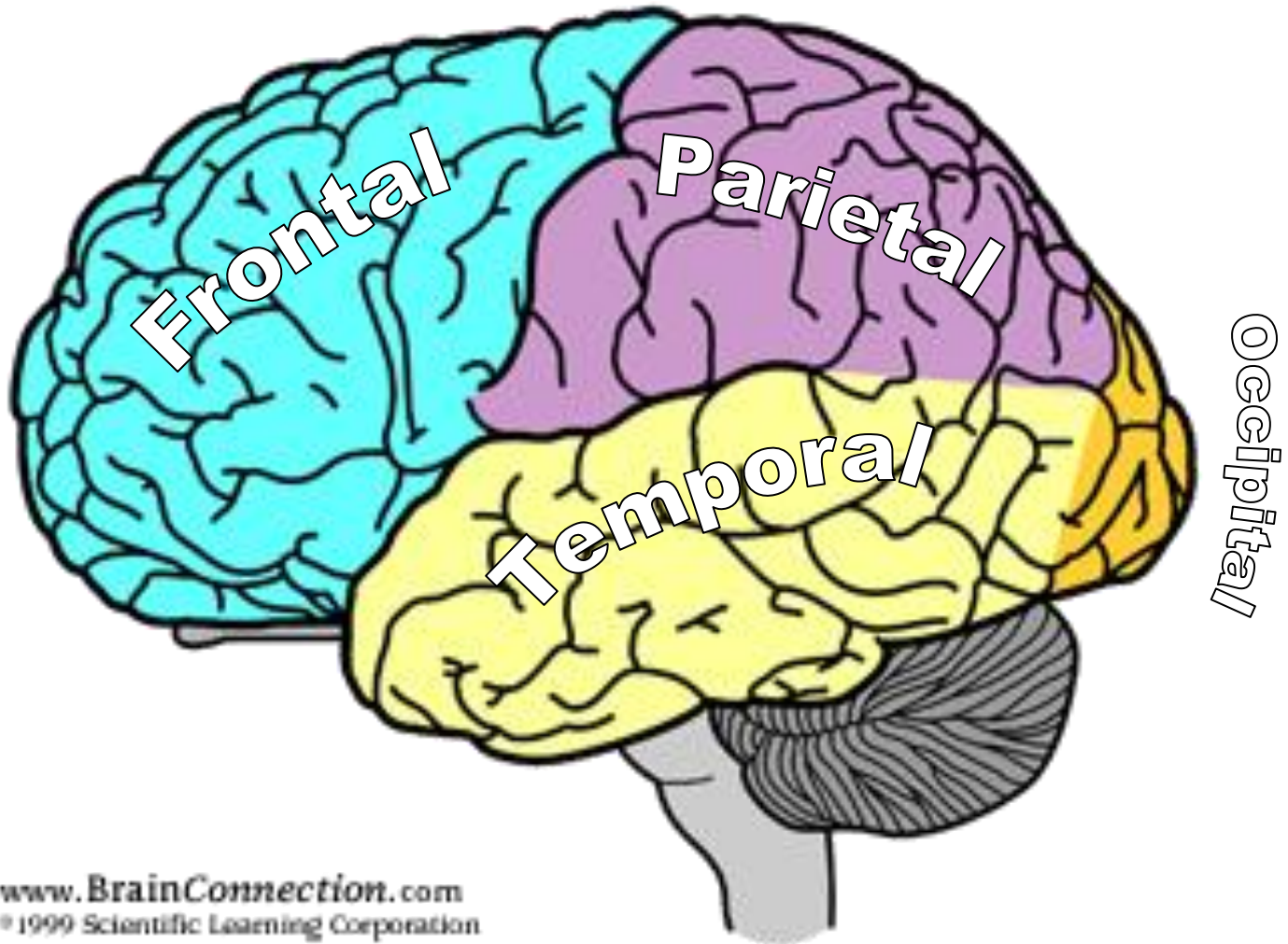
Head 1



Neurobiology

- Lobes:
 - »Frontal
 - »Temporal
 - »Parietal
 - »Occipital
- Cortex: Lateral Frontal Cortex (IQ)
- Amygdala & Hippocampus (Emotional Intelligence)

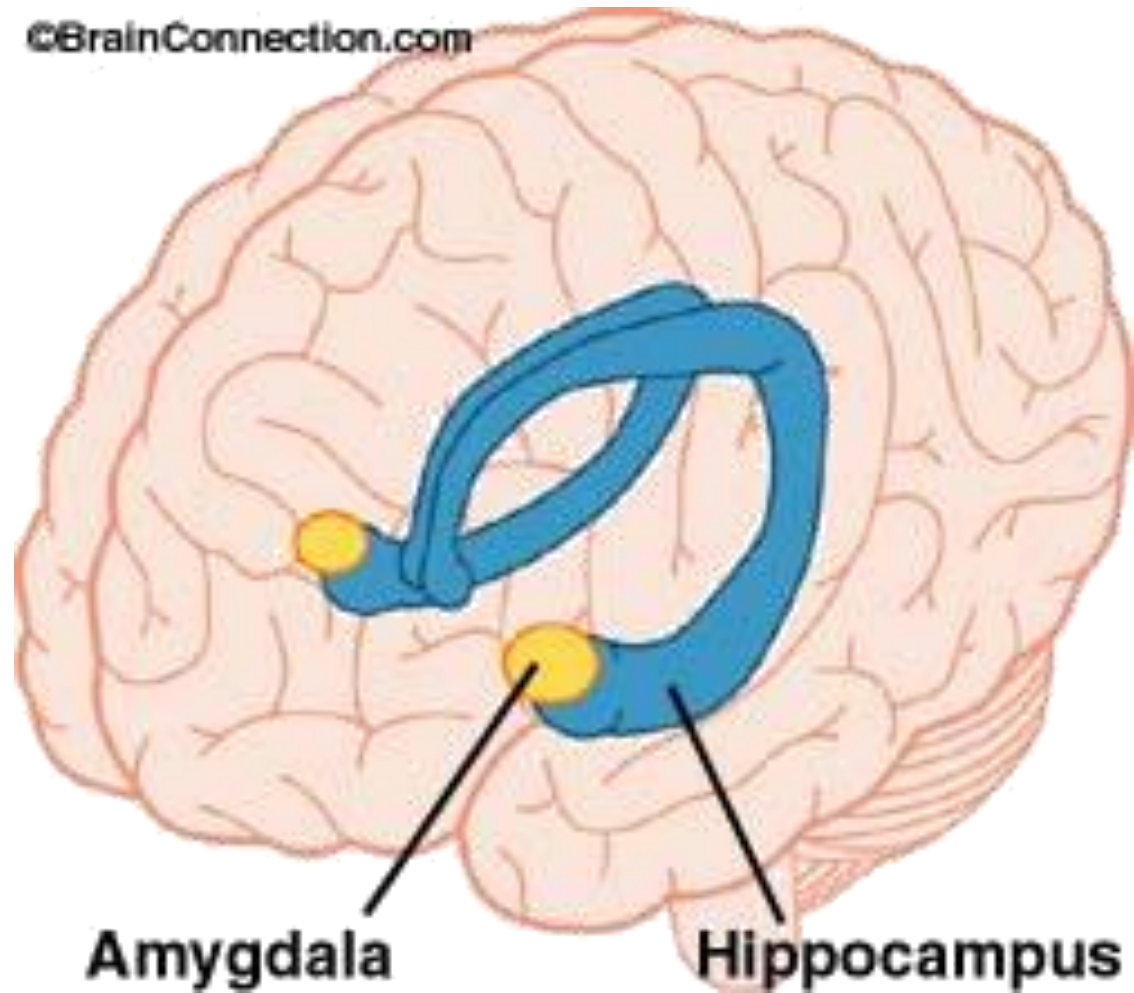
Lateral Brain



www.BrainConnection.com
© 1999 Scientific Learning Corporation

Amygdala & Hippocampus

©BrainConnection.com



The rate at which you learn
will become the only
sustainable competitive
advantage you'll have in your
life.

Peter Senge (The Fifth Discipline).

Statistics



Arthur Schopenhauer (1788-1860)



The Philosopher Arthur Schopenhauer :

All truth passes through 3 stages:

- It is ridiculed
- It is violently opposed
- It is accepted as being self evident

ADD=ADHD

- 2013 Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)

DSM-5 Criterion Inattention

- Inattention: Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

ADHD Inattentive Symptoms

- Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).
- Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).

ADHD Inattentive Symptoms

- Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).
- Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).

ADHD Inattentive Symptoms

- Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).

ADHD Inattentive Symptoms

- Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).

ADHD Inattentive Symptoms

- Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
- Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).

ADHD Inattentive Symptoms

- Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

DSM-5 Criterion Inattention

- Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least **five** symptoms are required.

DSM-5

- Several inattentive or hyperactive-impulsive symptoms were present prior to age **12 years**.
- Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).

ADD=ADHD

ADHD is ADD

ADHD is ADD: DSM-5 names:

- 314.01 Attention-Deficit/Hyperactivity Disorder, Combined Presentation
- 314.00 Attention-Deficit/Hyperactivity Disorder, Predominantly inattentive presentation
- 314.01 Attention-Deficit/Hyperactivity Disorder, Predominantly hyperactive-impulsive presentation

ADHD is ADD: DSM-5 names:

- 314.01 Other Specified Attention-Deficit/Hyperactivity Disorder
- 314.01 Unspecified Attention-Deficit/Hyperactivity Disorder

Executive Functions (EF)

There are more than 17 definitions for (EF).

The ADHD Report, Orban et al., volume 22
num. 8, Dec. 2014, page 8.

- Three primary Executive Functions (EF)
- Working memory (Ram memory)
- Behavioral inhibition (Dude, stop & think)
- Set shifting (Moving between tasks)

Executive Functions, Barkley, 2012, ISBN # 978-1-4625-0535-7

EF occurs in five areas:

- Time management
- Organization
- Motivation
- Concertation
- Self-discipline

Rappoport et al., (2013). Journal of Abnormal
Child Psychology, 37, 521-534

Executive Functions (EF) are integral for:

- Decision making
- Multitasking
- Self-regulation
- Novel reasoning
- Problem solving
- Organization

EF & ADHD

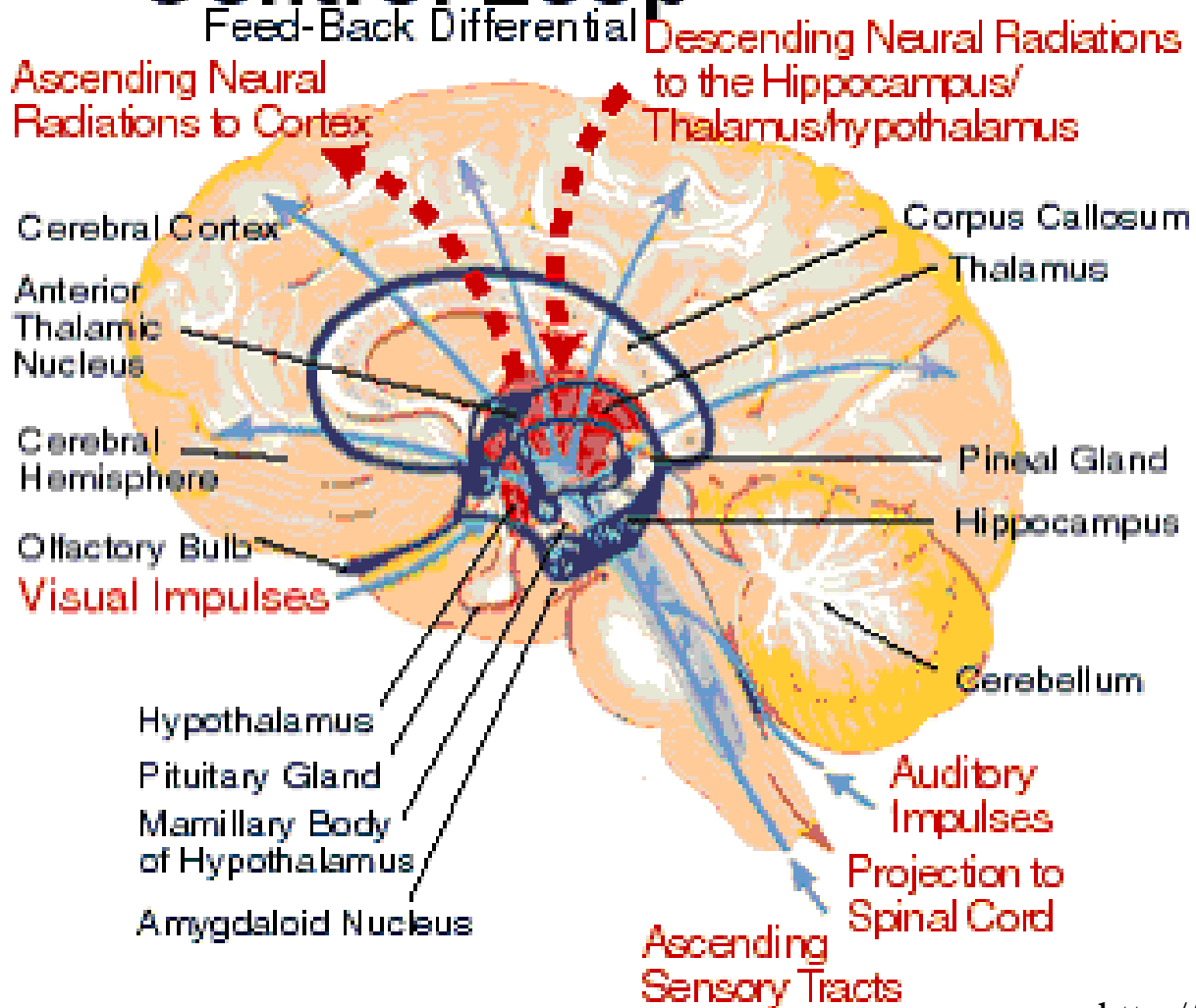
- Executive Functions (EF) may be a separate issue from ADHD. But, most people who have ADHD, have (EF) deficits.
- ??????????
- ??????????
- ??????????

Concentration Deficit Disorder (CDD)

previously called

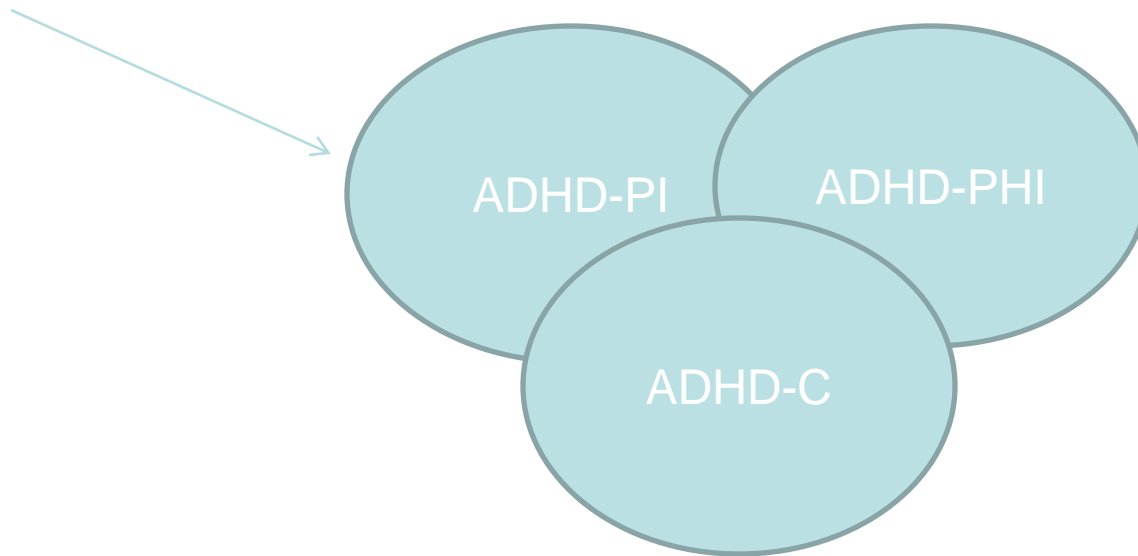
Sluggish Cognitive Tempo (SCT)

Reticular Activating System Control Loop



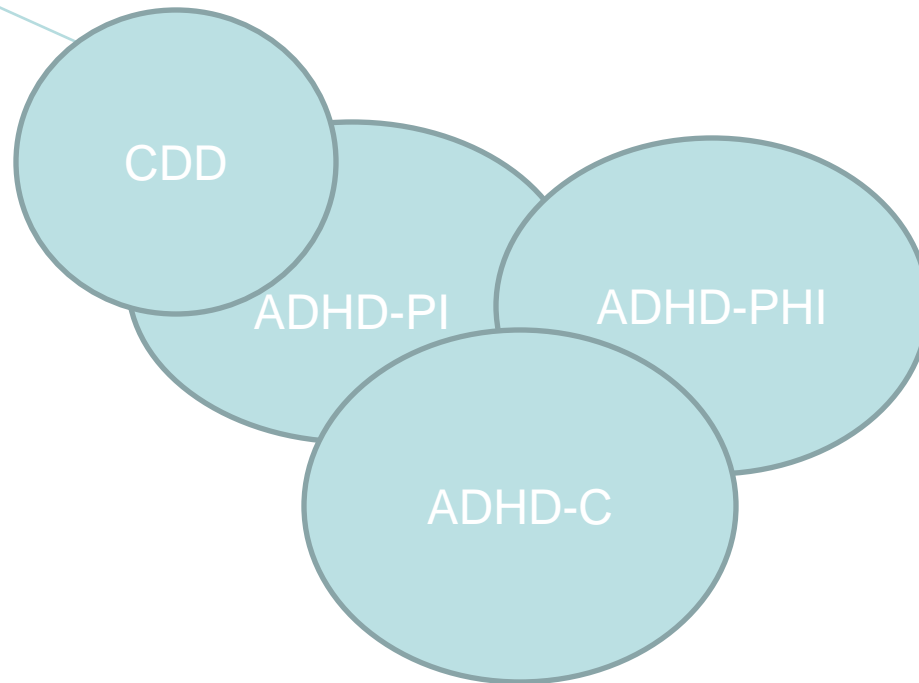
Concentration Deficit Disorder (CDD)

CDD is a homogeneous subset of ADHD-PI



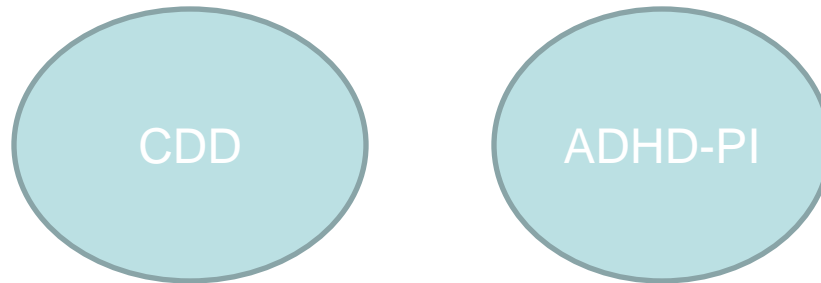
Concentration Deficit Disorder (CDD)

CDD is a homogeneous subset of ADHD-PI



Concentration Deficit Disorder (CDD) & ADHD-PI

CDD has been considered a homogeneous subset of ADHD-PI; however, it could be a separate entity.



Concentration Deficit Disorder (CDD)

ADHD

extroverted

obtrusive

risk takers

hyperactive

dys-inhibition

CDD

introverted

drifting

day dreamy

hypo-active

lack motivation

in a fog

Concentration Deficit Disorder (CDD)

Drifting tendencies may interfere with verbal memory, the person may have excellent visual-spatial memory, but still have problems with word recall.

Concentration Deficit Disorder (CDD)

In an excited state, CDD may look like an ADHD person: because of under-arousal, the person may have intense needs for emotional and intellectual stimulation.

Concentration Deficit Disorder (CDD)

The person must manage:

memory retrieval issues

weak working memory

cycling mental patterns (up-down)

variable levels of intense thought

hyperactivity

variable sexual appetites

Concentration Deficit Disorder (CDD)

Mental skills that can be problematic for
CDD:

calculation

abstract reasoning

reading

disorganized thoughts

Concentration Deficit Disorder (CDD)

Behaviors that may cause issues for CDD:

sloppiness

lose things

chronically late

appear as “lazy”

Concentration Deficit Disorder

Mental health issues:

Anxiety

Depression

Social withdrawal

Medication

Dr. Jim Russell

Medications for ADHD

Dr. Larry B. Silver

LDA Newsbriefs, Vol. 44 No 3, May/June 2009

Dextro- [dek-stroh] The right image
usually more potent

Levo [lee-voh] The left image
less effective

When viewed through polarized light

Medications for ADHD

Dr. Larry B. Silver

LDA Newsbriefs, Vol. 44 No 3, May/June 2009

Three types of stimulants:

Methylphenidate

Dextro-amphetamine

Amphetamines (Mixture of dextro- & levo)

Medications for ADHD

Dr. Larry B. Silver

LDA Newsbriefs, Vol. 44 No 3, May/June 2009

How long does the medication last?

- Four hours
- Eight hours
- Twelve hours

Medications for ADHD

Dr. Larry B. Silver

LDA Newsbriefs, Vol. 44 No 3, May/June 2009

Types of medications:

- Tablets (Ritalin)
- Capsules (Ritalin LA)
- Trans dermal patch (Daytrana)
- Liquid (Methylin Oral)
- Chewable (Methylin Chew)

WebMD

<http://www.webmd.com/add-adhd/childhood-adhd/stimulants-for-attention-deficit-hyperactivity-disorder>

Stimulants for Attention Deficit Hyperactivity Disorder

Examples

dexamethylphenidate

Focalin

dextroamphetamine

Dexedrine, Dextroamphetamine

lisdexamfetamine

Vyvanse

methylphenidate

Concerta, Daytrana, Metadate CD, Methylin, Ritalin

mixed salts amphetamine

Adderall

Healthline

<http://www.healthline.com/health/adhd/medication-list#Overview1>

- Liquid

Quillivant (Extended release liquid methylphenidate)

Healthline

<http://www.healthline.com/health/adhd/medication-list#Overview1>

- Non-stimulants affect the brain differently than stimulants. Though these drugs affect neurotransmitters, they don't increase dopamine levels. It also generally takes longer to see results. Non-stimulants come in a variety of classes. They might be used when stimulants prove unsafe, ineffective, or for a person who wants to avoid side effects of stimulants.

Healthline

<http://www.healthline.com/health/adhd/medication-list#Overview1>

- [Atomoxetine](#) (Strattera)
- Atomoxetine is not a stimulant. It prolongs the action of norepinephrine in the brain. It does not need to be tapered when it is discontinued. It is long acting, taken just once a day.

Healthline

<http://www.healthline.com/health/adhd/medication-list#Overview1>

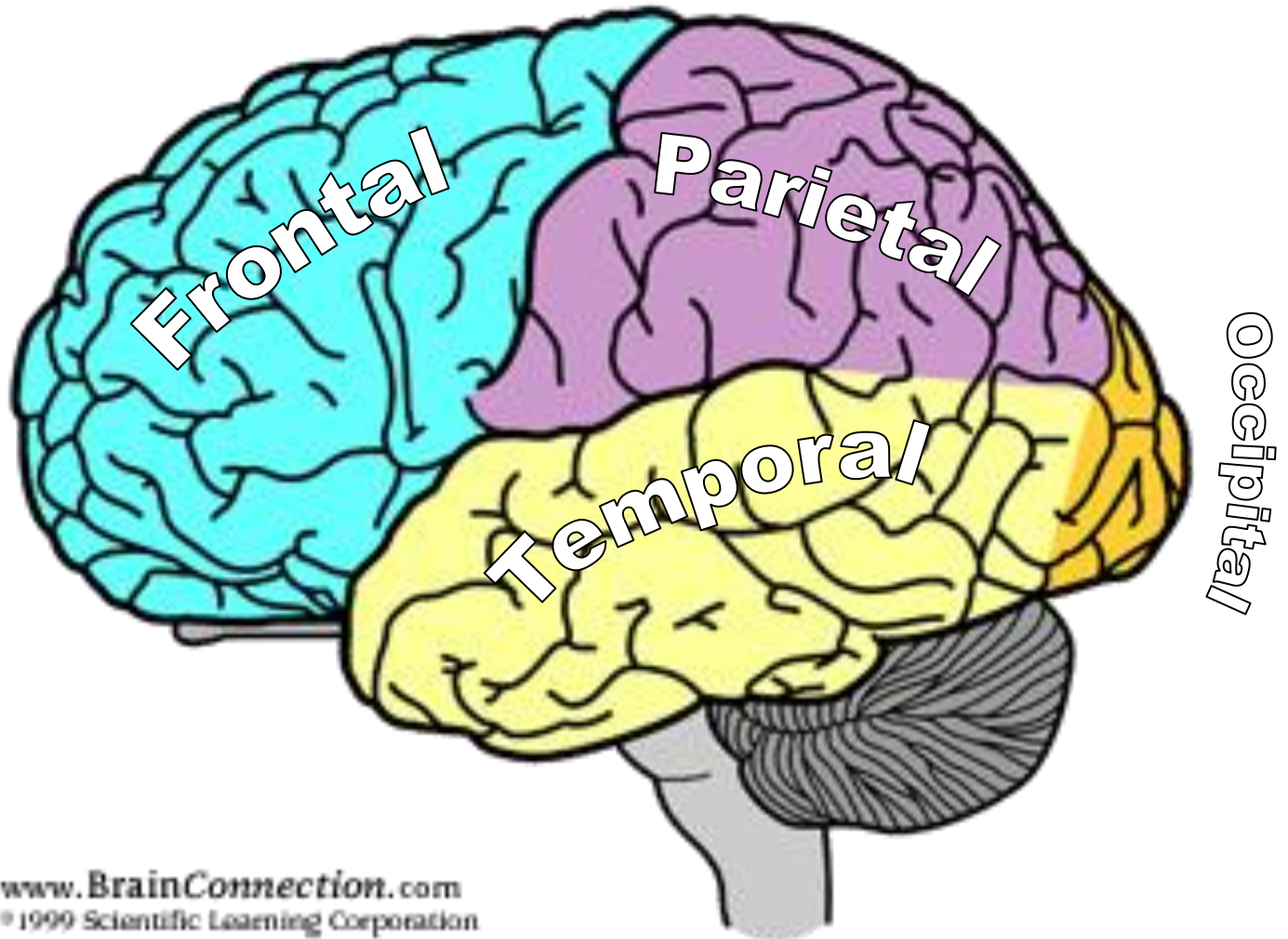
- [Clonidine](#) (Kapvay)
- Clonidine is used as a treatment for high blood pressure, and also to treat ADHD. The extended release form is Kapvay. Clonidine is used to reduce hyperactivity, impulsiveness, and distractibility.

Healthline

<http://www.healthline.com/health/adhd/medication-list#Overview1>

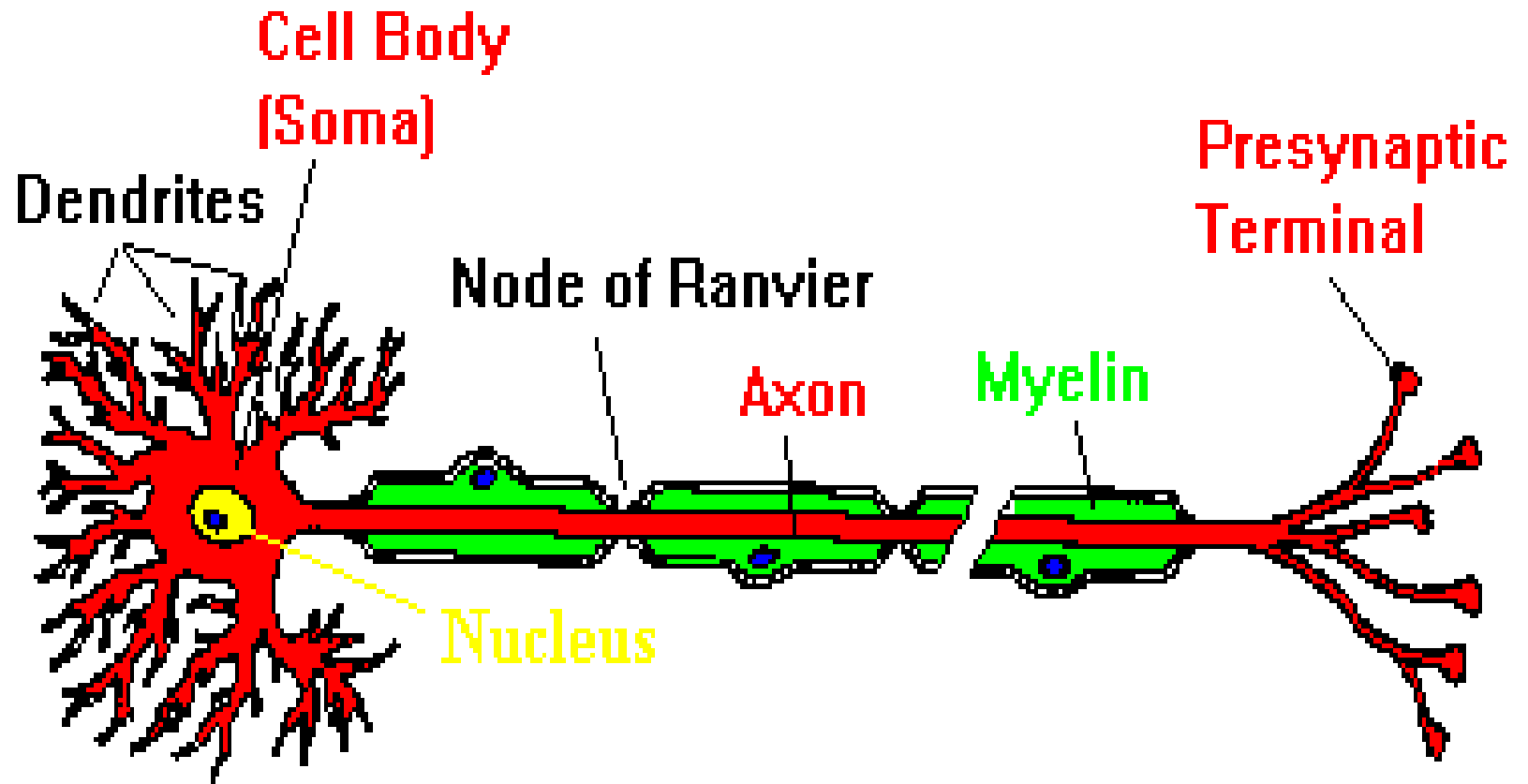
- [Guanfacine](#) (Intuniv)
- Guanfacine is traditionally prescribed for high blood pressure in adults. Only the brand-name Intuniv may be used for ADHD in children. It may help with memory and behavioral inhibition. It is helpful for improving aggression and hyperactivity, and is used as a single drug treatment for ADHD.

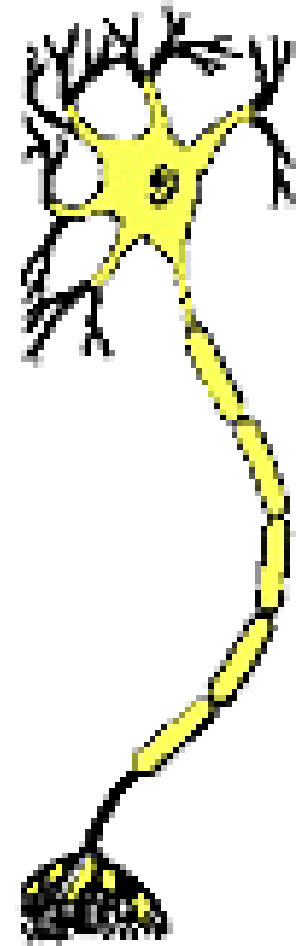
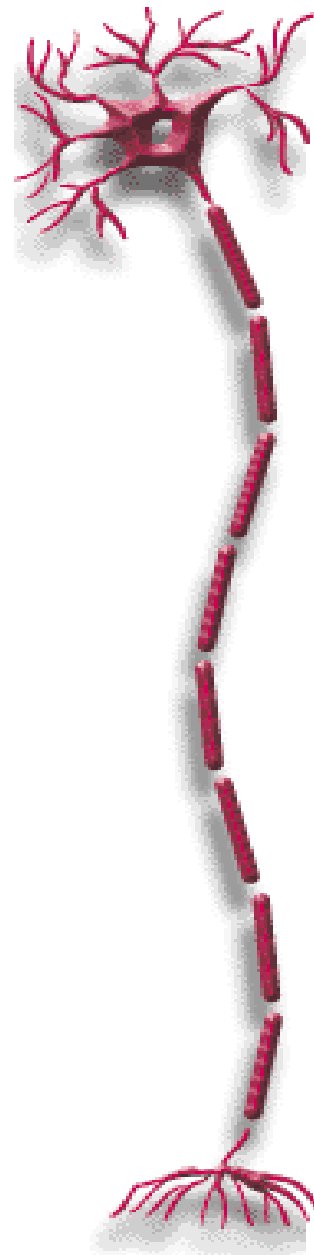
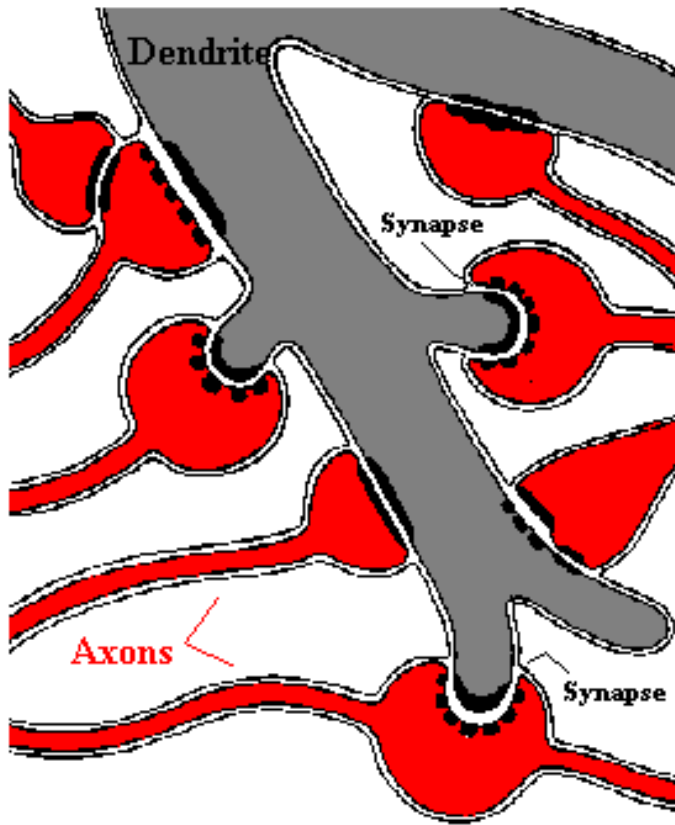
Lateral Brain



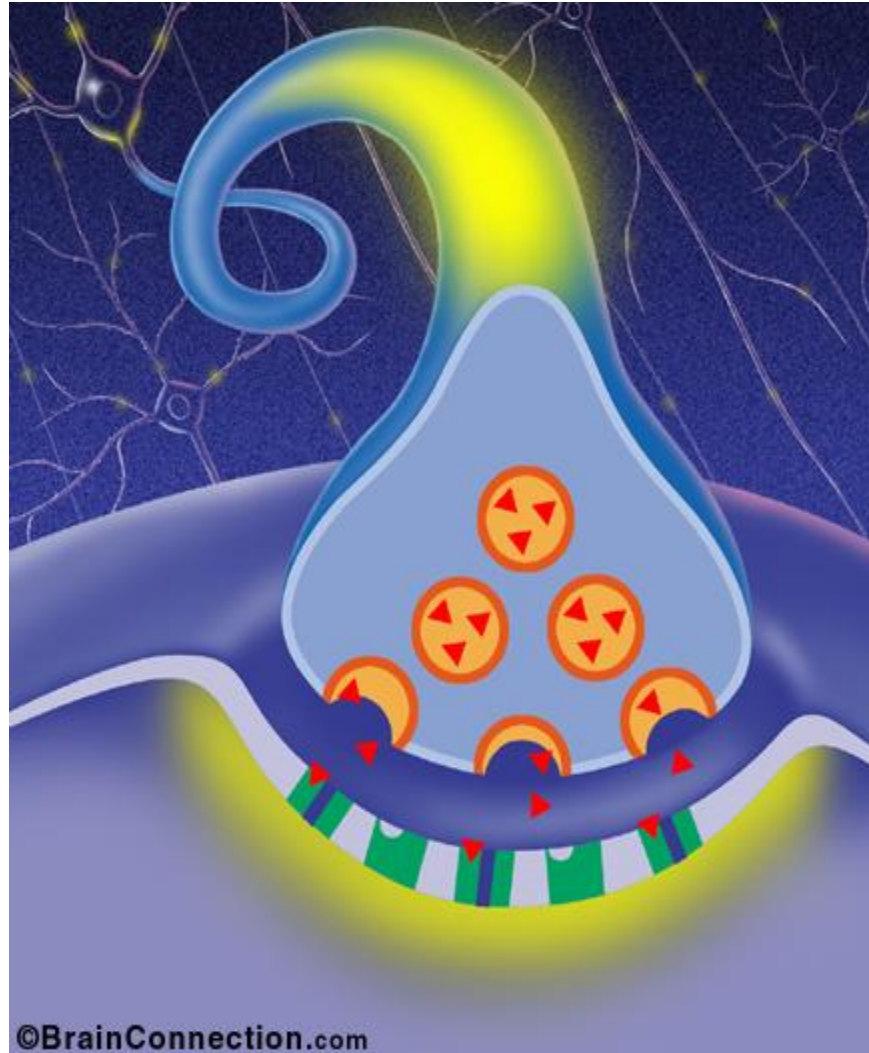
www.BrainConnection.com
© 1999 Scientific Learning Corporation

Neuron





Neurotransmission



Treatment Approach III: Medications

- Stimulants Response
 - Ritalin (methylphenidate) 77%
 - Dexedrine (d-amphetamine) 74%
 - Adderall (d-,l-amphetamines) 76%
 - Cylert (permoline) (discontinued) 73%
- Trying all Stimulants
- Preschool Response Rate
 - 4-5 year olds <50%
 - 2-3 year olds <30%

Barkley, R.A. (2002) ADHD & Oppositional Defiant Children, Phoenix, AZ

Stimulants: Behavioral Effects

- Increased Concentration & Persistence
- Decreased Impulsivity & Hyperactivity
- Increased Work Productivity (~Accuracy)
- Better Emotional Control
- Decreased Aggression & Defiance
- Improved Compliance & Rule Following
- Better Working Memory & Self-Speech
- Improved Handwriting & Motor Skills
- Improved Peer Acceptance & Interactions
- Better Awareness of Game in Sports

Barkley, R.A. (2002) ADHD & Oppositional Defiant Children, Phoenix, AZ

Stimulants: Side Effects

Barkley, R.A. (2002) ADHD & Oppositional Defiant Children, Phoenix, AZ

- Insomnia & Loss of Appetite (50%+)
- Headaches & Stomach Aches (20-40%)
- Irritable, Prone to Crying (10%)
- Nervous Habits & Mannerisms (10%)
 - Tics (<3%) & Tourette's (Rare)
- Mild Weight Loss (1-4lbs. Year 1)
- No Effects on Adult Stature
- Increased Heart Rate, Blood Pressure

Stimulants: Side Effects

Barkley, R.A. (2002) ADHD & Oppositional Defiant Children, Phoenix, AZ

- Additive When Used as Prescribed
 - No, must be inhaled or injected
- These drugs are over-prescribed
 - 1-2% on medication Vs. 3-7% prevalence
- Creates Aggressive, Assaultive Behavior
 - no, decreases aggression & antisocial actions
- Increased Risk of Seizures (No)
 - only at very, very high doses
- Cause Tourette's Syndrome (No)
 - Can increase tics in 30%; decreases it in 35%

More Myths About Stimulants

Barkley, R.A. (2002) ADHD & Oppositional Defiant Children, Phoenix, AZ

- Greater Risk of Later Substance Abuse
 - no, decreases risk if continued through teens
- Doesn't Improve Academic Achievement
 - Not if you mean academic knowledge
 - Improves classroom conduct & rule-following
 - Improves peer interactions at school
 - Can result in improved grades
 - Results in reduced punishment

ADDitude

ADHD Medications List and Guide

Confused about which ADHD medication is right for you? Read on as our expert explains the dosing and effectiveness of this list of common ADHD medications.

by Larry Silver, M.D.

<http://www.additudemag.com/adhd/article/8673-2.html>

Jim Russell Ph.D.

- Is this a brain based problem?
- Yes
- What part of the brain do we want to help?
Front-Back-Left-Right- Middle
- How are we going to get there?
- Understanding
- Can you make a difference?
- Yes Yes Yes

The rate at which you learn
will become the only
sustainable competitive
advantage you'll have in your
life.

Peter Senge (The Fifth Discipline).

Oceangram Stories Archive, Author unknown, 08/19/2006

- Enough
- I wish you enough sun to keep your attitude bright.
- I wish you enough rain to appreciate the sun more.
- I wish you enough happiness to keep your spirit alive.
- I wish you enough pain so that the smallest joys in life appear much bigger.

Oceangram Stories Archive, Author unknown, 08/19/2006

- Enough
- I wish you enough gain to satisfy your wanting.
- I wish you enough loss to appreciate all that you possess.
- I wish enough hellos to get you through the final good-bye.

Thank you!

Jim Russell Ph.D., N.C.C., L.P.C.

777 Craig Rd,

Suite 200

St. Louis, MO 63141

Phone: (314) 963-8862

Fax: (314) 918-8943

E-mail jimrussell3@juno.com

Bonus material

Definition

Sensory integration disorder or dysfunction (SID) is a neurological disorder that results from the brain's inability to integrate certain information received from the body's five basic sensory systems.

Sensory integration disorder

“These sensory systems are responsible for detecting **sights**, **sounds**, **smells**, **tastes**, **temperature**, **pain**, and the position and movements of the body.”

http://www.healthline.com/galecontent/sensory-integration-disorder?ask_return=Sensory+Integration+Disorder#1

Sensory integration disorder

“The brain then forms a combined picture of this information in order for the body to make sense of its surroundings and react to them appropriately.”

http://www.healthline.com/galecontent/sensory-integration-disorder?ask_return=Sensory+Integration+Disorder#1

Sensory integration disorder

“The ongoing relationship between behavior and brain functioning is called sensory integration (SI), a theory that was first pioneered by A. Jean Ayres, Ph.D., OTR, in the 1960s.”

http://www.healthline.com/galecontent/sensory-integration-disorder?ask_return=Sensory+Integration+Disorder#1

The Highly Sensitive Child

by Elaine N. Aron, PH.D.

- 15%-20% of the population are Highly Sensitive Children (HSC)
- Introversions is not high sensitivity (70% of introverts are highly sensitive HS)
- Not inherently shy or neurotic
- Their brains process information more thoroughly, feel stronger emotions
- Overwhelmed by “high volume”

The Highly Sensitive Child by Elaine N. Aron, PH.D.

- Stronger feelings
- Deeper thoughts
- Suffer when others suffer
- Will melt down when overwhelmed
- Want to know the “meaning” of life
- Afraid of social judgments
- Scientists-theologians- historians- lawyers-
doctors-nurses-teachers-artists

Sensory Integration Disorder

- Wool
- Tight clothing
- Seams in socks
- Tags
- Colicky infants
- Cry a lot as infants
- Lactose intolerance
- Sensitive skin
- Avoid hot or cold weather
- Texture of food
- Clumsy

The Highly Sensitive Child, by Elaine N. Aron, PH.D.

- “If you want to have an exceptional child,
- you must be willing to have an exceptional child.”

Sensory Processing Disorders

- Fears jumping, climbing, and swinging
- Trouble learning to ride a bike
- Difficulties with transitioning
- Dislikes getting hands dirty
- Doesn't want to walk barefoot on grass or sand

Sensory Processing Disorders

Dislikes having faced washed

Getting hair cut

Avoids turtle necks, tube socks, belts

Overreacts to:

➤ noises

➤ lights

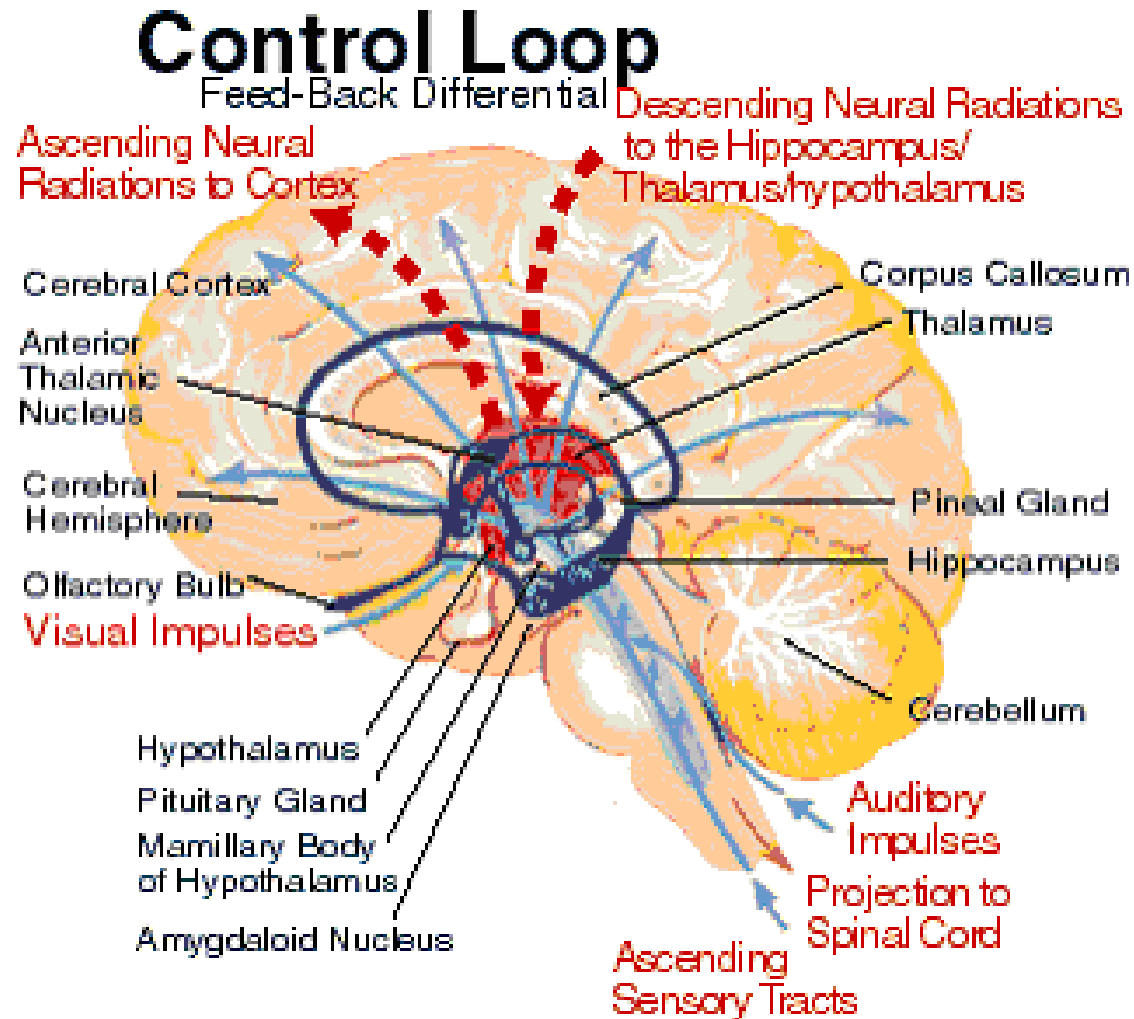
➤ smells

➤ touch

Sensory Integration Disorder

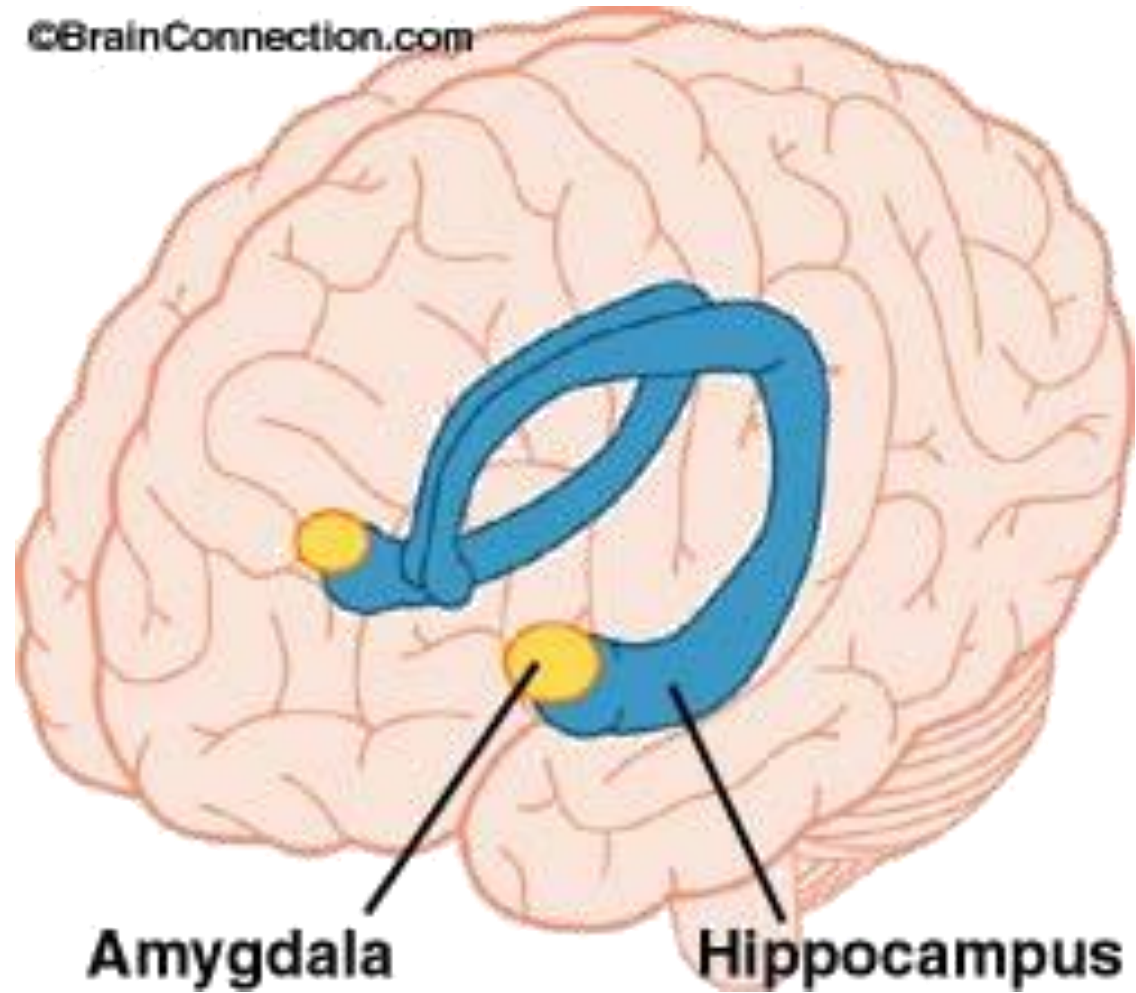
- Wool
- Tight clothing
- Seams in socks
- Tags
- Colicky infants
- Cry a lot as infants
- Lactose intolerance
- Sensitive skin
- Avoid hot or cold weather
- Texture of food
- Clumsy

Reticular Activating System



Amygdala & Hippocampus

©BrainConnection.com



Joseph LeDoux

- The Emotional Brain
- ISBN 0-684-83659-9 (pbk.)
- High road to sensory cortex
- Low road to the Amygdala

Sensory Information

2 Pathways

- Eyes
- Optic Nerve
- Optic Chiasm
- Thalamus
- Cortex
- Slower

Eyes
Optic Nerve
Optic Chiasm
Thalamus
Amygdala
Faster

Fear

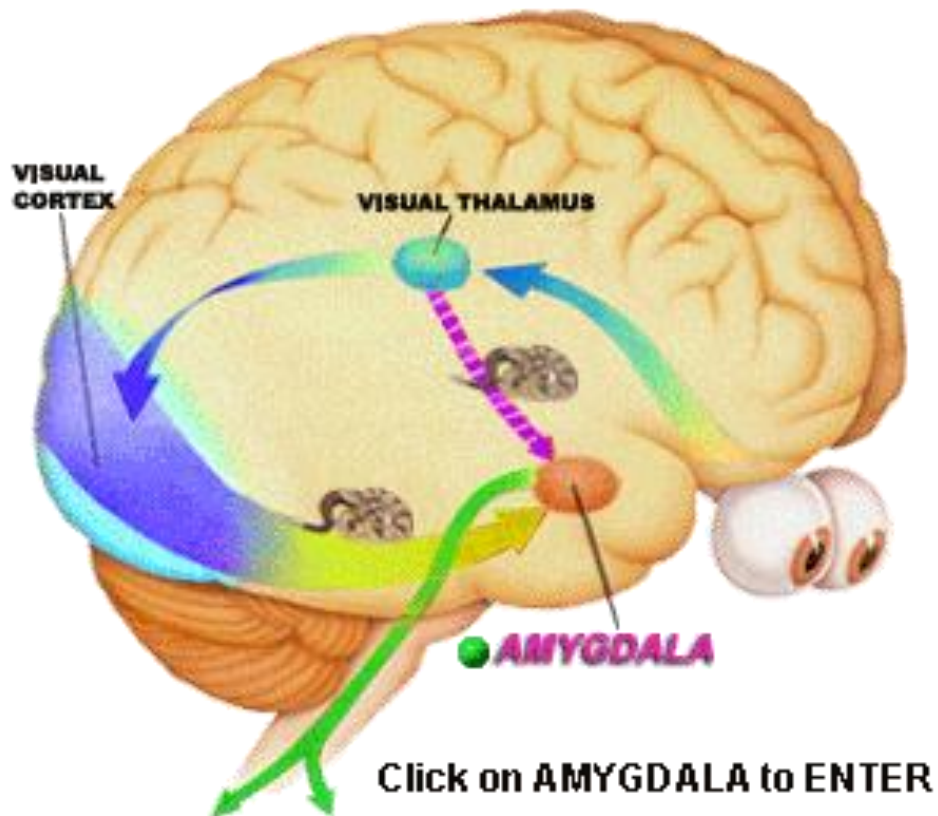


Illustration based on LeDoux JE (1994) Emotion, Memory, and the Brain. Scientific American.

The Highly Sensitive Child

by Elaine N. Aron, PH.D.

- 15%-20% of the population are Highly Sensitive Children (HSC)
- Introversions is not high sensitivity (70% of introverts are highly sensitive HS)
- Not inherently shy or neurotic
- Their brains process information more thoroughly, feel stronger emotions
- Overwhelmed by “high volume”

The Highly Sensitive Child by Elaine N. Aron, PH.D.

- Stronger feelings
- Deeper thoughts
- Suffer when others suffer
- Will melt down when overwhelmed
- Want to know the “meaning” of life
- Afraid of social judgments
- Scientists-theologians- historians- lawyers-
doctors-nurses-teachers-artists

The Highly Sensitive Child, by Elaine N. Aron, PH.D.

- “If you want to have an exceptional child,
- you must be willing to have an exceptional child.”