

Psychopharmacology in children with autistic spectrum disorders: When "behavior" is more than just behavior

Rev 4/4/2013

James Coplan, MD
Neurodevelopmental Pediatrics of the Main Line
Rosemont, PA
info@drcoplan.com
www.drcoplan.com
(610) 520-2130



CEC 2013 Convention & Expo
San Antonio, April 3-6, 2013

www.drcoplan.com

www.drcoplan.com

JAMES COPLAN, M.D.
Neurodevelopmental Pediatrics / Author - Speaker
Making Sense of Autistic Spectrum Disorders

Welcome

- About Dr. Coplan
- About the Book
- Book 2
- Other Publications
- Speaking Venues
- News & Issues
- Join the Team
- Contact Us

James Coplan, MD
internationally recognized clinician, author, and public speaker in the fields of early child development, early language development and autistic spectrum disorders

Dr. Coplan is the author of the book *Making Sense of Autistic Spectrum Disorders*, an award-winning, best-selling book, and a documentary film. He is also the author of the book *Crucial Moments: Survival Strategies for Your Child with the Best of the Autism Community*. His book is presented in a series of "Personal Journeys" series.

Watch Dr. Coplan explain the natural history of Autistic Spectrum Disorders.
Part 1: Introduction (click here)
Part 2: Symptoms (click here)
Part 3: Natural History (click here)

To view all News & Videos click here.

April 5, 2013
Dr. Coplan presents "Autism: Medical and Educational Management of Challenging Behaviors" at the 2013 Council for Exceptional Children Convention and Expo on Friday, April 5, 2013 from 9:00 AM to 11:00 AM. The CEC conference, which is the largest professional development event dedicated to special and gifted education, is April 3-6, 2013 at the Henry B. Gonzalez Convention Center in San Antonio, Texas. Dr. Coplan is a professor in the Division of Special Education at Texas State University (retired) and Adjunct Professor at St. Edward's University in Austin, Texas. His ten-year focus, moderated by Brenda Schoenbaum, Ph.D., of the Department of Curriculum and Instruction at Texas State University, helps attendees conceptualize the relationship among underlying neurobiological deficits, internal environmental contributors, and external environmental contributors to enhance their ability to respond effectively, and respectfully, to the needs of children with challenging behavior. Check back soon for more details.

Disclosures / References

- Dr. Coplan is author of *Making Sense of Autistic Spectrum Disorders: Create the brightest future for your child with the best treatment options* (Bantam-Dell, 2010), and receives royalties on its sale



Chapter 12: Behavior management and psychopharmacology

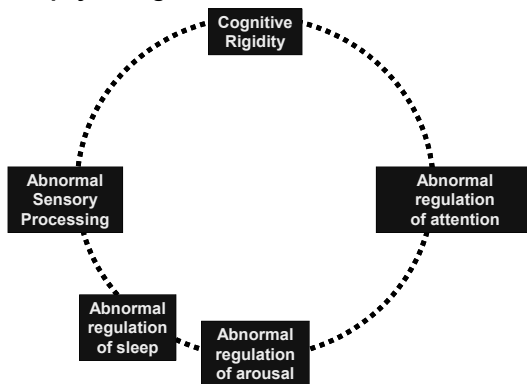
- This presentation will include a discussion of off-label drug use

www.drcoplan.com

Outline / Basic Premises

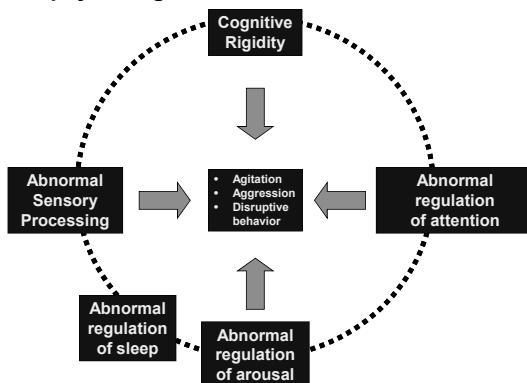
- **Biologically driven behaviors**
 - Occur *irrespective of environmental contingencies*
 - Do not serve a social function
- **Specific behaviors are tied to specific neurotransmitters / brain systems**
 - Internalizing Behaviors
 - Externalizing Behaviors
- **How to recognize**
- **What to do**

Neuropsychological Deficits in Children with ASD

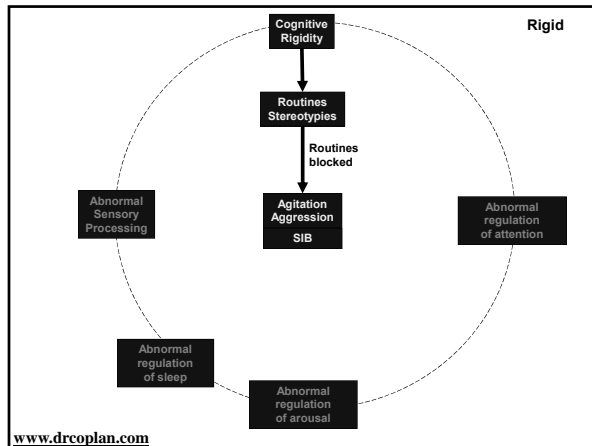


www.drcoplan.com

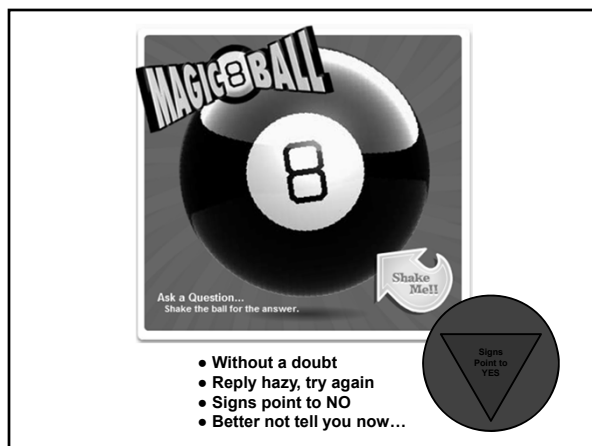
Neuropsychological Deficits in Children with ASD

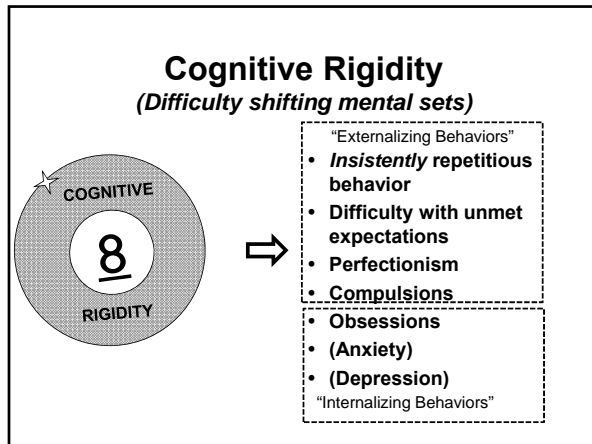


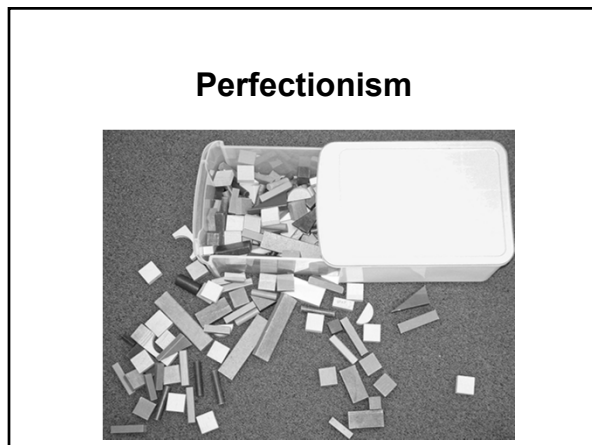
www.drcoplan.com

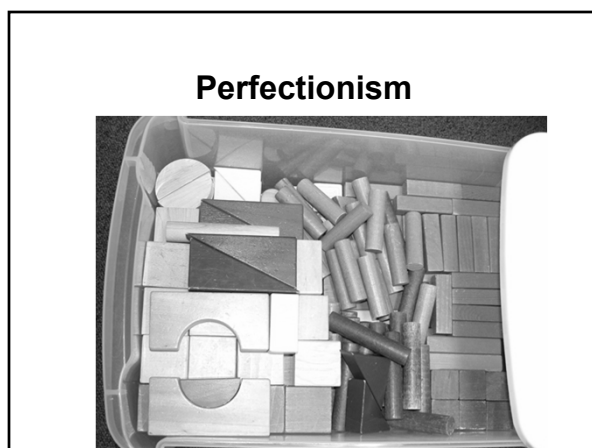




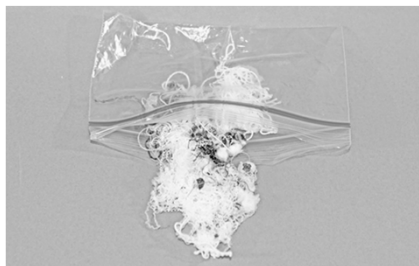








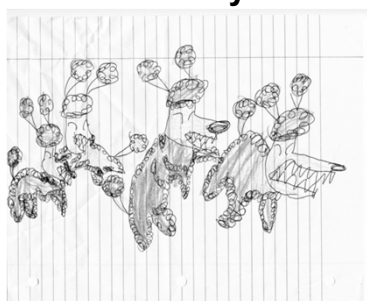
Compulsions



Joseph F: 15 y.o. boy Asperger Syndrome

MRN: 05-0096

Anxiety

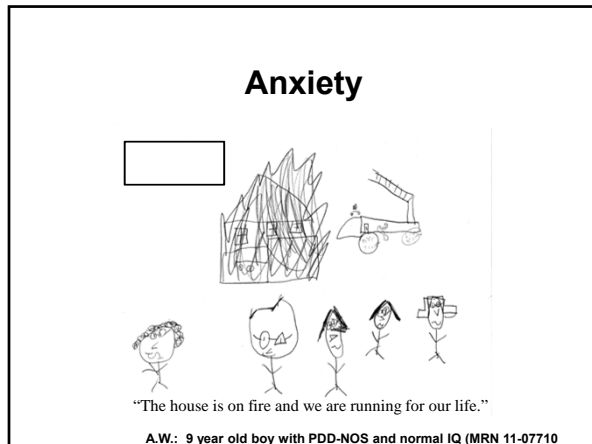


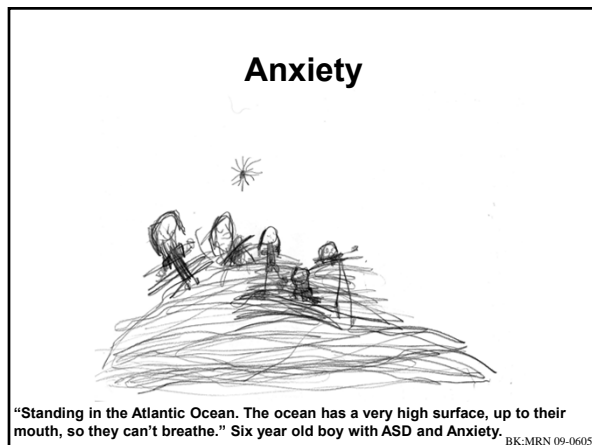
RD. 7 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD
www.drcoplan.com MRN: 07-0427

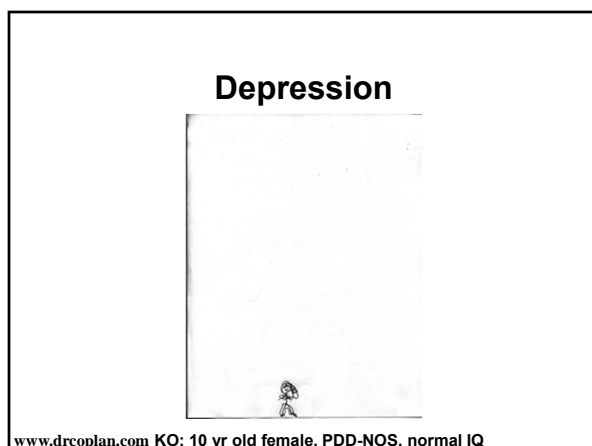
Anxiety

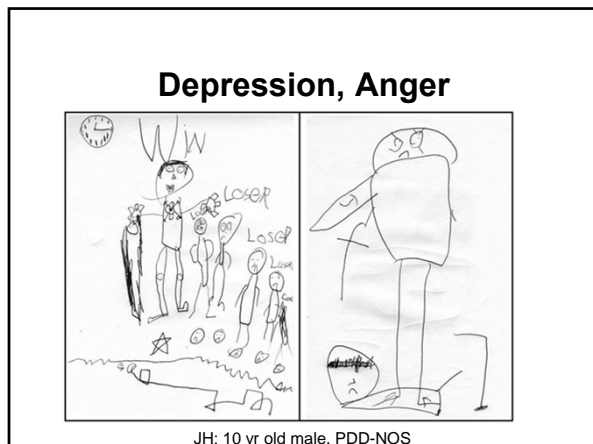


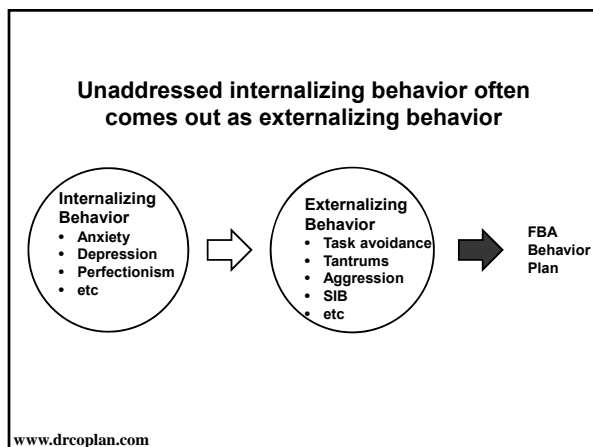
RD. 7 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD
www.drcoplan.com MRN: 07-0427

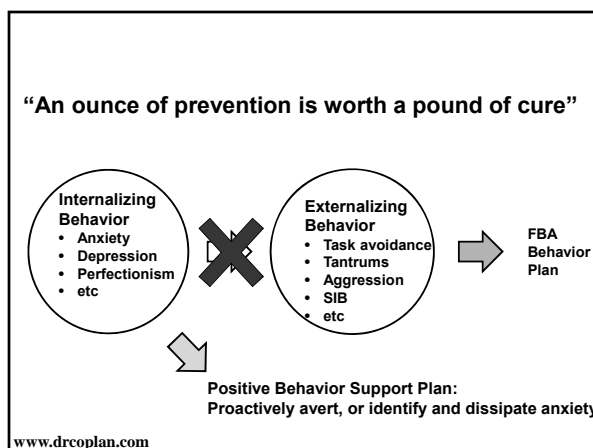




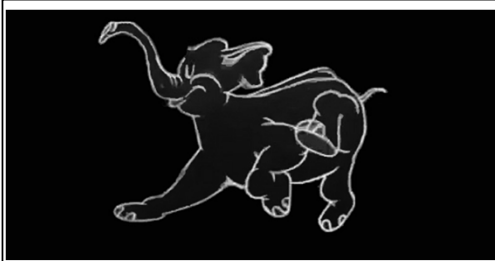








How do you kill a blue elephant?



Shoot it with a blue elephant gun.

How do you kill a pink elephant?



How do you kill a pink elephant?



**Hold it by the trunk until it turns blue,
then *shoot it with a blue elephant gun.***

Positive Behavior Support Plan for Cognitive Rigidity

- Staff Awareness
- Visual Schedules
 - What am I supposed to be doing *now*?
 - What am I supposed to do *next*?
- Relaxation Techniques
 - Mental Imagery
 - Isometrics
 - Deep Breathing
 - “Break” cards
- Cognitive Behavioral Therapy (CBT)
- SSRIs

www.drcoplan.com

The Story of Billy’s Box - 1

(or, why it’s important to ID internalizing behavior)

- 8 y.o. boy with ASD and normal Nonverbal IQ
- Severe tantrums at school
- Antecedents:
 - TRANSITIONS
- Function?
 - Not attention, escape, access
 - “Biological” (i.e. “just part of his ASD”)?

The Story of Billy’s Box - 2

(or, why it’s important to ID internalizing behavior)

Q: “Billy – You’re always getting in trouble at school. What’s going on?”

A: “I’m afraid that if I hand in my work, I’ll never get a chance to go back and make it perfect.”

The Story of Billy's Box - 3

(or, why it's important to ID internalizing behavior)



"Put your papers in the box, and we promise you will be able to go back later and work on them some more, if you want to."

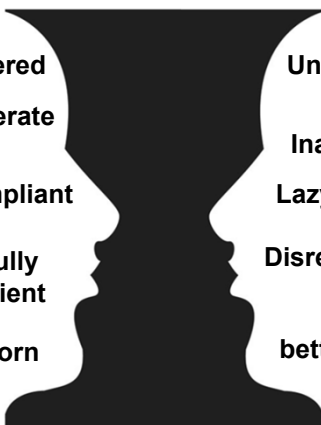
"We caution against the use of the word "stubborn" to characterize Ryan's classroom behavior. Ryan's task avoidance and non-adherence to teacher instruction reflect **cognitive rigidity and anxiety, rather than "stubborn" behavior**. Re-framing his actions will lead to more appropriate intervention, placing the focus on **anxiety management and cognitive flexibility**, rather than **"compliance."**

Self-centered
Inconsiderate
Of others
Non-compliant

Willfully
Disobedient

Stubborn

Rude



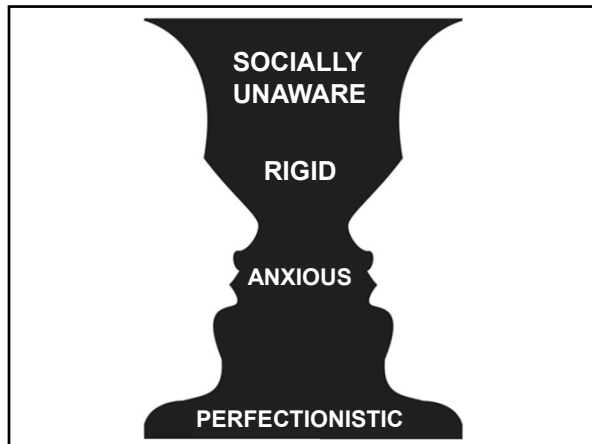
Unmotivated

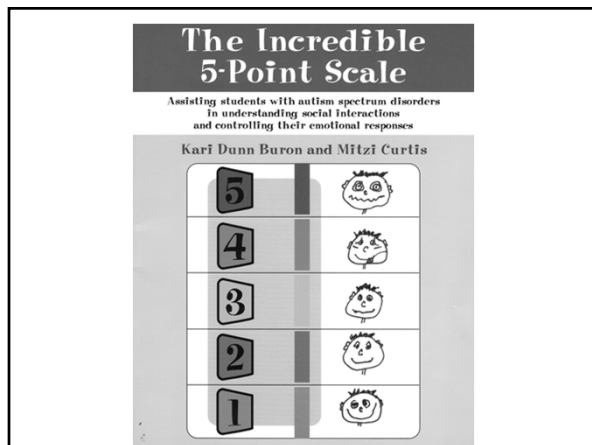
Inattentive

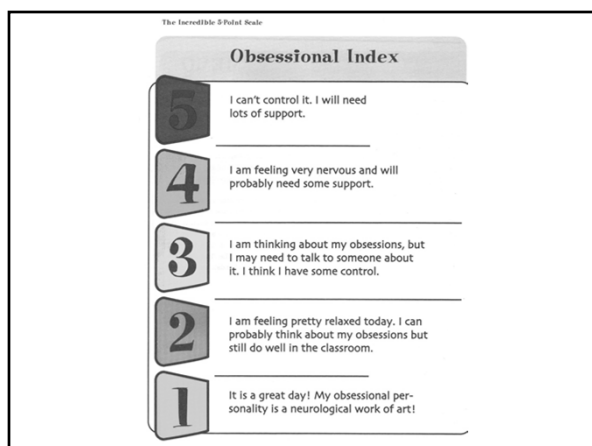
Lazy

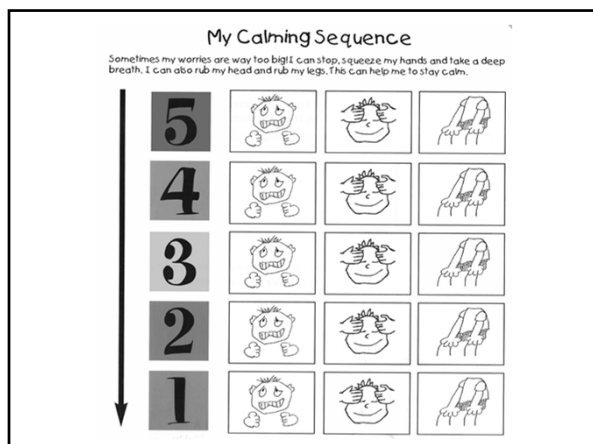
Disrespectful

Could do
better if only
he tried
harder









Selective Serotonin Reuptake Inhibitors (SSRIs)

- **Primary targets**
 - Cognitive Rigidity
 - Anxiety
 - Obsessions (thoughts)
 - Compulsions (behavior)
 - Perfectionism
 - Depression
 - Stereotypes: Probably not
- **“Downstream” benefit:**
 - ↓ Disruptive Behavior
 - ↑ Quality of Life

www.drcoplan.com

SSRIs in ASDs

- **Side Effects**
 - Activation
 - Hyperactivity
 - Irritability
 - Insomnia
 - Agitation
 - Uncommon or irrelevant
 - GI dysfunction
 - Sexual dysfunction
 - “Black Box” warning (suicidal mentation)

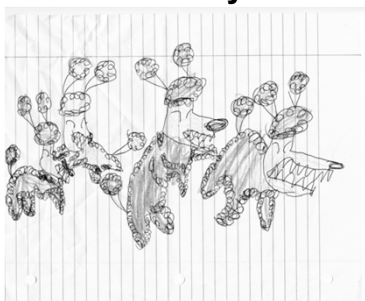
www.drcoplan.com

Selective Serotonin Reuptake Inhibitors (SSRIs)

Generic Name	Brand Name	Comment
Fluoxetine	Prozac	• The first selective SRI
Fluvoxamine	Luvox	
Sertraline	Zoloft	• May be less activating
Citalopram	Celexa	• Prolonged QT interval
Escitalopram	Lexapro	• Prolonged QT interval
And others...		

www.drcoplan.com

Anxiety

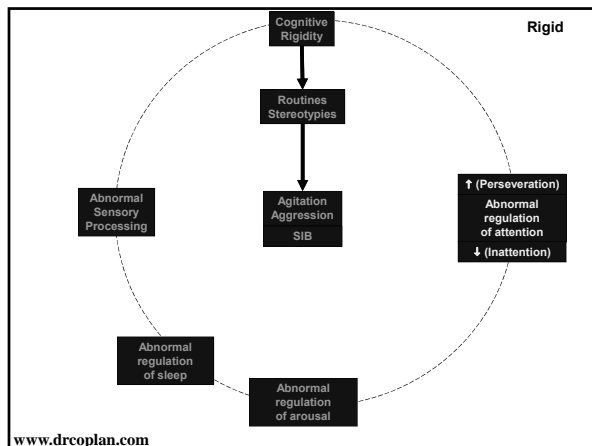


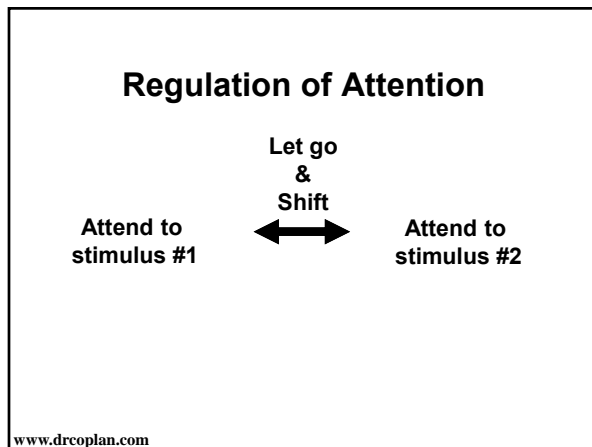
RD. 7 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD
www.drcoplan.com MRN: 07-0427

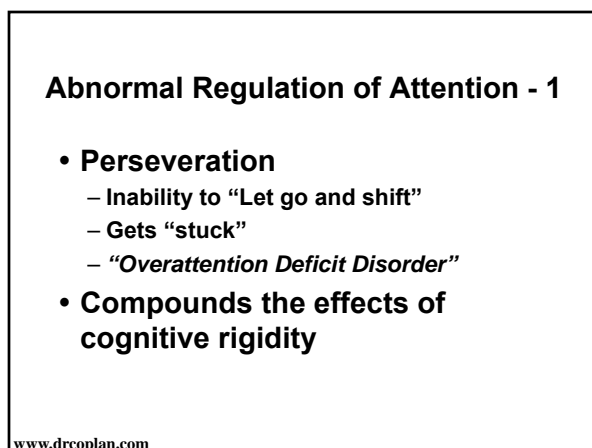
Anxiety after Rx with CBT & Escitalopram

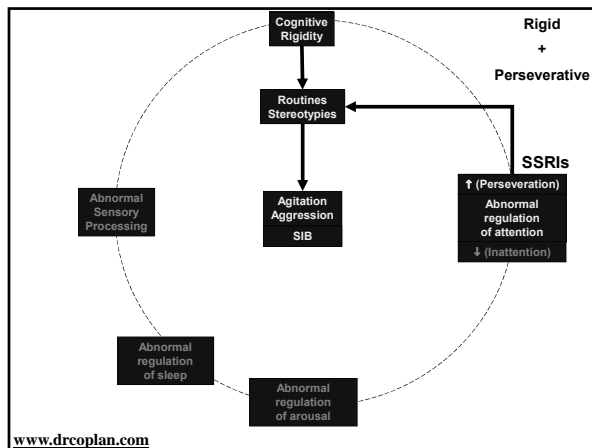


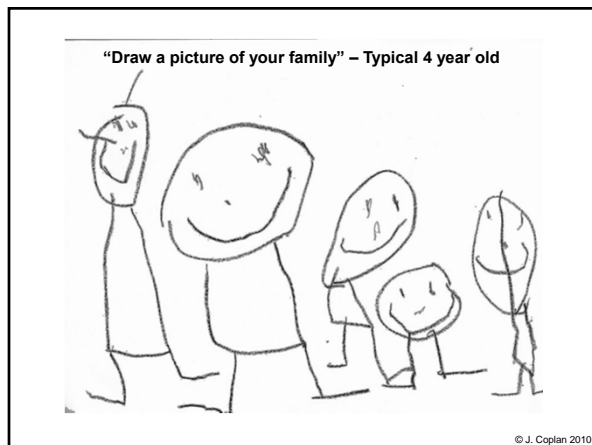
RD. 9 y.o. F, nl IQ, PDD-NOS & Anxiety. Father: GAD
www.drcoplan.com MRN: 07-0427

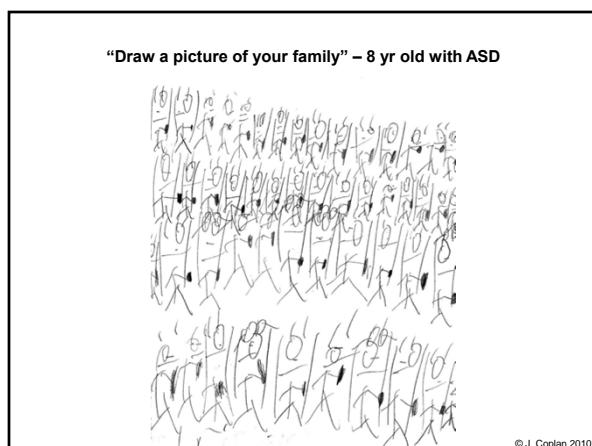


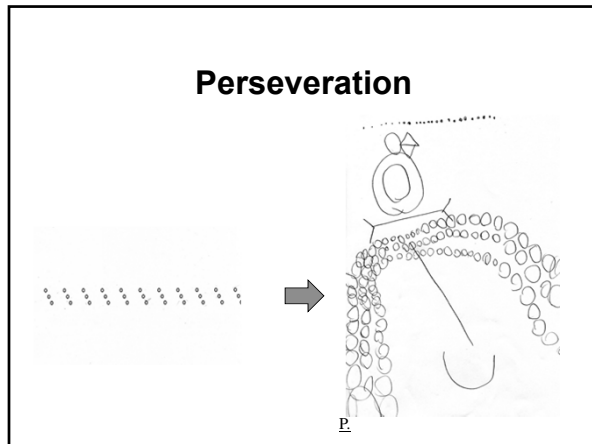












**Abnormal Regulation of Attention
(Perseveration)**

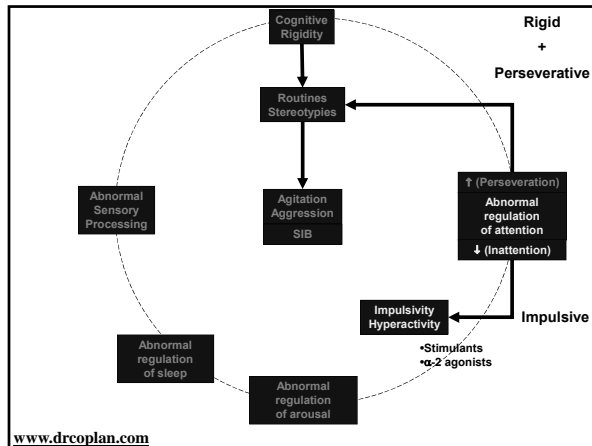
- **Interventions**
 - Verbal preparation for transitions
 - Visual Schedules
 - SSRIs (OCD: Proven; ASD: likely)

www.drcoplan.com

Abnormal Regulation of Attention - 2

- **Inattention**
 - Inability to focus
 - Impulsive
 - Distractible

www.drcoplan.com



Inattention

• Classroom interventions

- Limited stimuli
- Short work periods
- Preferential seating

• Medication

- Stimulants & Norepinephrine Reuptake Inhibitors (NRIs)
 - May ↑ anxiety / rigidity / agitation / Tics
- Alpha-2 agonists
 - Sleepiness
 - Occasional weepiness
 - Hypotension: Rare (start low, & go slow)

www.drcoplan.com

Stimulants, NRI's

Generic Name(s)	Brand Name(s)	Comment
Amphetamine		FDA Schedule II
Dextroamphetamine	Dexedrine, Dextrostat	FDA Schedule II
Dextroamphetamine + amphetamine	Adderall	FDA Schedule II
Methylphenidate	Concerta, Ritalin, Metadate	FDA Schedule II
Dexmethylphenidate	Focalin	FDA Schedule II
Atomoxetine, Attentin	Strattera	Norepinephrine reuptake Inhibitor (NRI), not FDA Schedule II
Lisdextroamphetamine	Vyvanse	Pro-drug of D-amphetamine; Not FDA-II

www.drcoplan.com

Alpha-2 Agonists

Generic Name	Brand Name(s)	Comment
Clonidine	Catapres	More sedating than guanfacine
Guanfacine	Tenex, Intuniv	

- Frontal cortex / Locus Ceruleus: post-synaptic alpha-2 receptors
- Sympathetic outflow (autonomic nervous system): Pre-synaptic autoreceptors →BP

www.drcoplan.com

Clinical Pearl

- **Beware of anxiety or perseveration masquerading as inattention**
 - Perseveration on inner stimuli: “Inattentive”
 - Perfectionism: “Problems w. task completion”
 - Anxiety: “Rushes through work”

www.drcoplan.com

Regulation of Arousal

Hypoarousal

- Lethargic

↔

Calm & Relaxed

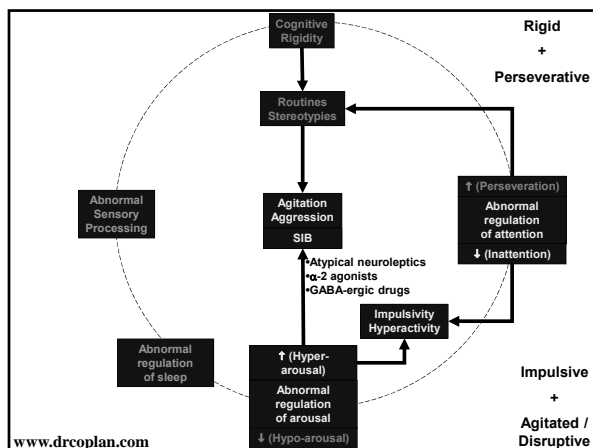
↔

Fight or Flight Response

“Red Alert”

- ↑Adrenaline
- ↑Heart Rate
- ↑Resp. Rate
- Combative

www.drcoplan.com



"He is so hard to calm down when he gets upset....His emotional thermostat doesn't work... We feel like we're walking on eggshells all the time."

Parent of an 8 year old with ASD and unpredictable bursts of agitation

F. O. MRN 06-0208

Atypical Neuroleptics

Generic Name	Brand Name	Comment
Aripiprazole	Abilify	<ul style="list-style-type: none"> • Relatively less risk of weight gain • FDA approved for Rx of ASD
Clozapine	Clozaril	<ul style="list-style-type: none"> • Bone marrow suppression
Olanzapine	Zyprexa	<ul style="list-style-type: none"> • Greater risk of weight gain
Quetiapine	Seroquel	<ul style="list-style-type: none"> • Greater sedation
Risperidone	Risperdal	<ul style="list-style-type: none"> • Greater risk of weight gain • FDA approved for Rx of ASD
Ziprazidone	Geodon	Relatively less risk of weight gain

www.drcoplan.com

Regulation of Sleep - 1

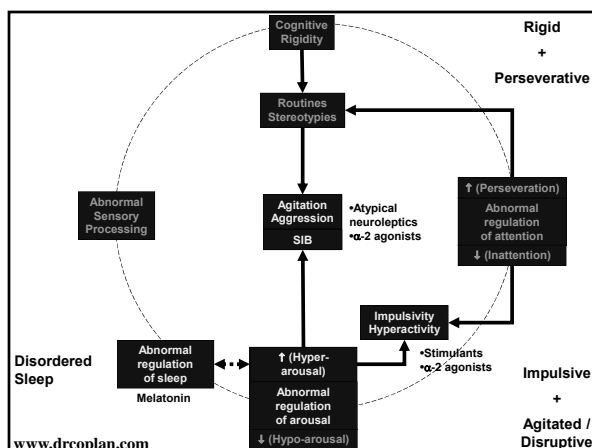
- **Melatonin**
 - Brain hormone
 - ↓ Metabolic rate (Heart, Temp)
 - “You’re sleepy now”
- **Suppressed by light**
 - 24 hr cycle
 - Seasonal cycle

www.drcoplan.com

Regulation of Sleep - 2

- **Abnormal melatonin cycling**
 - Primary disorders of sleep
 - Blindness
 - ASD
- **Symptoms**
 - Delayed onset of sleep
 - Shortened duration / frequent waking

www.drcoplan.com

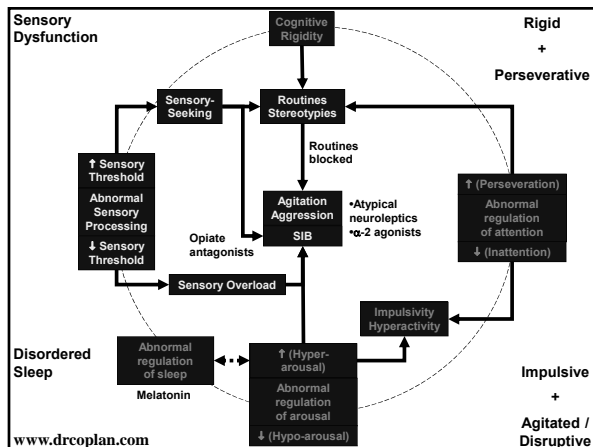


Sensory Processing

- **Subjective Properties**
 - Familiar / Unfamiliar
 - Pleasant / Unpleasant
 - Strong / Weak
 - Internal / External
- **Sensory Input → Self-awareness**
- **Mirror Neurons → Empathy**

Mostofsky, S. and J. Ewen, *Altered Connectivity and Action Model Formation in Autism Is Autism*. Neuroscientist, 4/15/2011

www.drcoplan.com

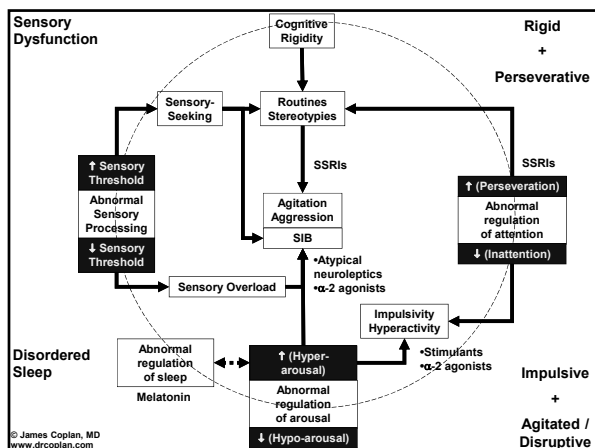


www.drcoplan.com

The whole is greater than the sum of its parts

Max Wertheimer

www.drcoplan.com



Summary

- **Why this child?**
 - What is this child's developmental Level?
 - Is this stage-appropriate behavior?
 - Does the behavior serve a social function?
 - Escape, access, attention
 - Is the classroom placement appropriate?
 - Language level?
 - Does this behavior occur in other settings?
 - Family factors?
 - Parents consistent at home?
 - Parental psychopathology? (Anxiety, Depression, Alcohol)

www.drcoplan.com

Summary

- **Why this child?**
 - Neuropsychological factors?
 - Cognitive Rigidity
 - Internalizing Behavior → Externalizing Behavior
 - Dysregulation of attention
 - Dysregulation of arousal
 - Sensory Seeking / Sensory Overload
- **Behavioral Intervention – Usually**
- **Academic Intervention – sometimes**
 - Shift from rote to inferential learning (2nd - 3rd grade): challenge
- **Medication - Sometimes**

www.drcoplan.com



