

# From ABC to ADHD

Eric Tridas, MD

*April 3 & 4, 2009  
The Hawai'i Branch of the  
International Dyslexia Association*

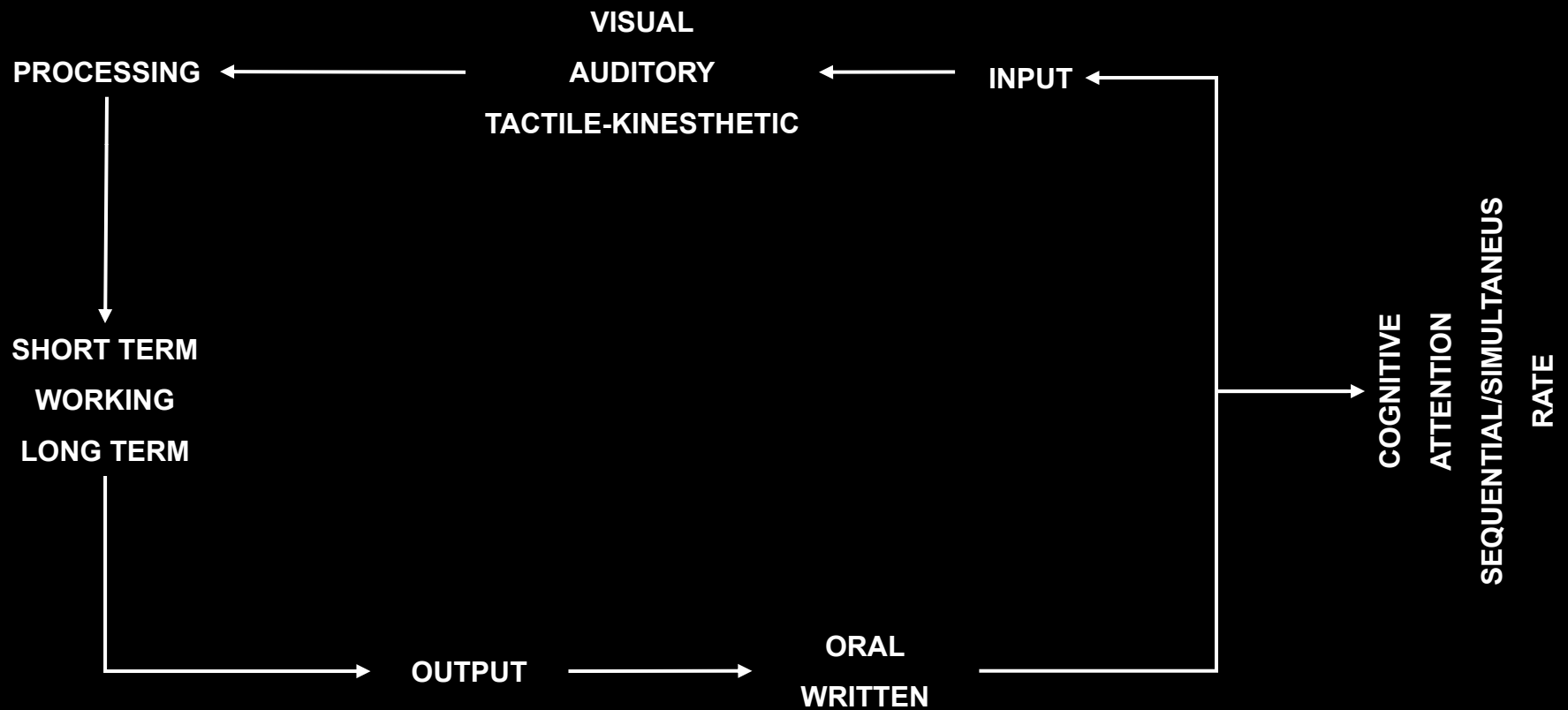
# The Developmental Web



# Developmental Web

Contributing Factors  
to Clinical Presentation

# Developmental Profile



# Visual Perceptual Problems

- IMAGINEHOWCONFUSINGITWOULDBEIFEVERYTHINGYOUREADLOOKEDLIKETHIS!
- ORIFTHEWORDSBEGINDENONPLACESTHATDON'TMAKESENSETOYOU?
- TALKFIRETHESRETTLEWEREDESREVER, or  
OUT OF ORDER
- w r e o n a l p a  
T o s e t a e l v e g e .  
e d s m c e r h  
h d t

# Language Processing

---

- Phonology
- Semantics
- Morphology
- Syntax
- Discourse
- Metalinguistics
- Pragmatics

# Tactile-kinesthetic Processing

---

- **Impacts Fine Motor Function**
  - **Progresses in a proximal-distal fashion**
  - **Affected by:**
    - **Sense of body position or movement**
    - **Visual spatial processing**
    - **Verbal-motor integration**
    - **Motor planning**
    - **Motor sequential memory**
    - **Monitoring**
    - **Tone**
    - **Coordination**

# Memory

---

- Short Term
- Active working
- Long Term



# Short Term Memory

---

- Holds information for a few seconds
- Limited storage capacity
- Depends on:
  - Volume
  - Modality
    - Visual, Auditory, Tactile - Kinesthetic
  - Attention

# Working Memory

---

- Intermediate duration
- Holding an idea in mind while developing, elaborating, clarifying, using it
  - Recalling answers while thinking of the question
  - Complex math problems
  - Reading (summarizing/comparing while decoding)
  - Selecting color while remembering what you are drawing

# Working Memory

---

- Factors affecting it:
  - Attention
  - Rate
  - Volume
  - Automaticity of skill

# Long Term Memory

---

- Unlimited storage capacity
- Long duration
- Retrieval affected by:
  - Relevancy of stimulus
  - Frequency of use
  - Strategy for memorization (consolidation)

# Output

---

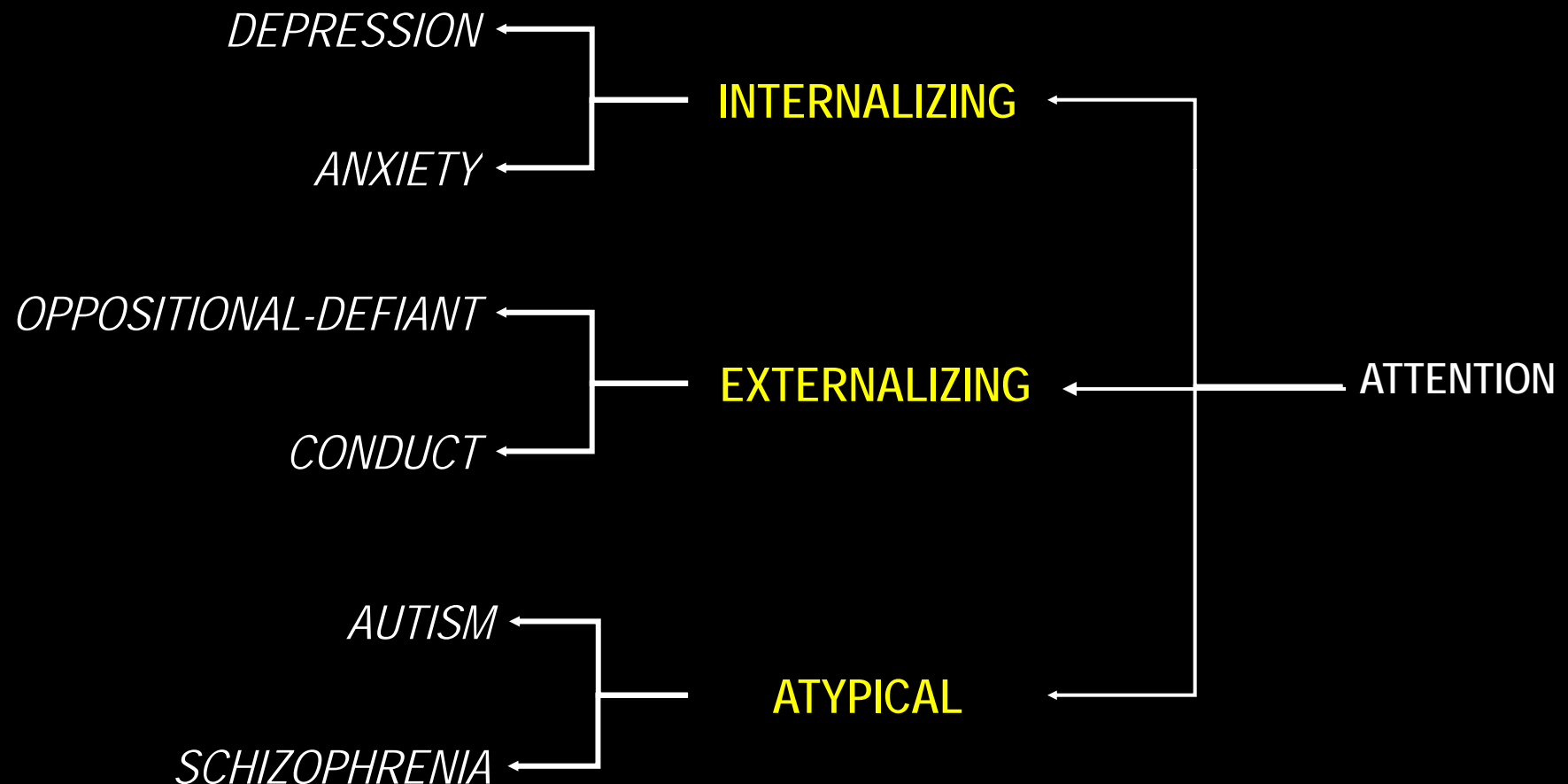
- Oral
  - Casual
  - Benefits from tone, gestures, etc.
- Written
  - Very formal
  - Depends on fine motor / graphomotor function
    - Motor sequences, pencil grip, spatial organization

# Fine Motor Function

---

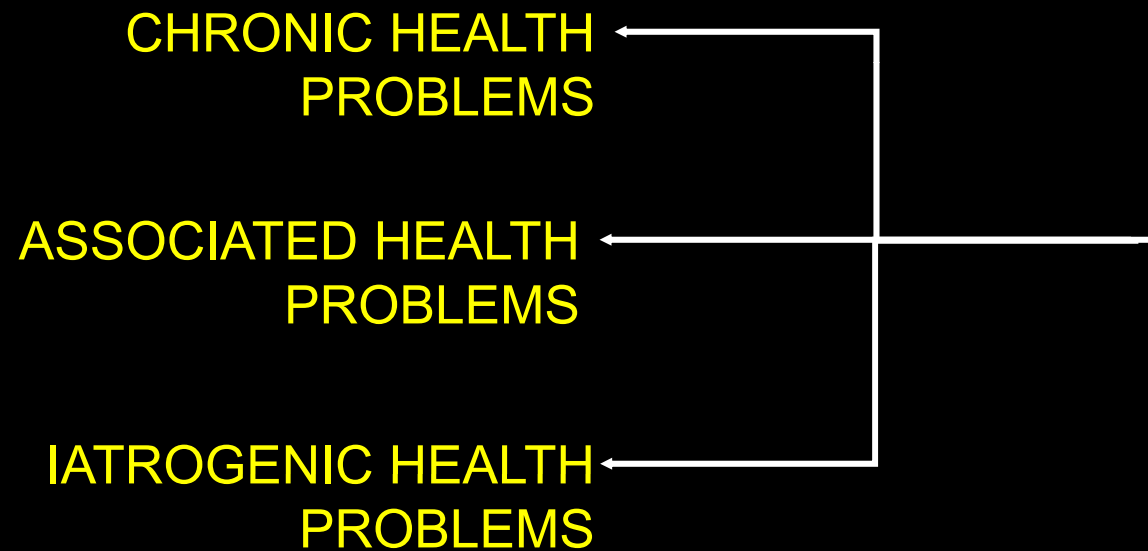
- Progresses in a proximal-distal fashion
- Affected by:
  - Sense of body position or movement
  - Visual spatial processing
  - Verbal-motor integration
  - Motor planning
  - Motor sequential memory
  - Monitoring
  - Tone
  - Coordination

# Behavioral Profile



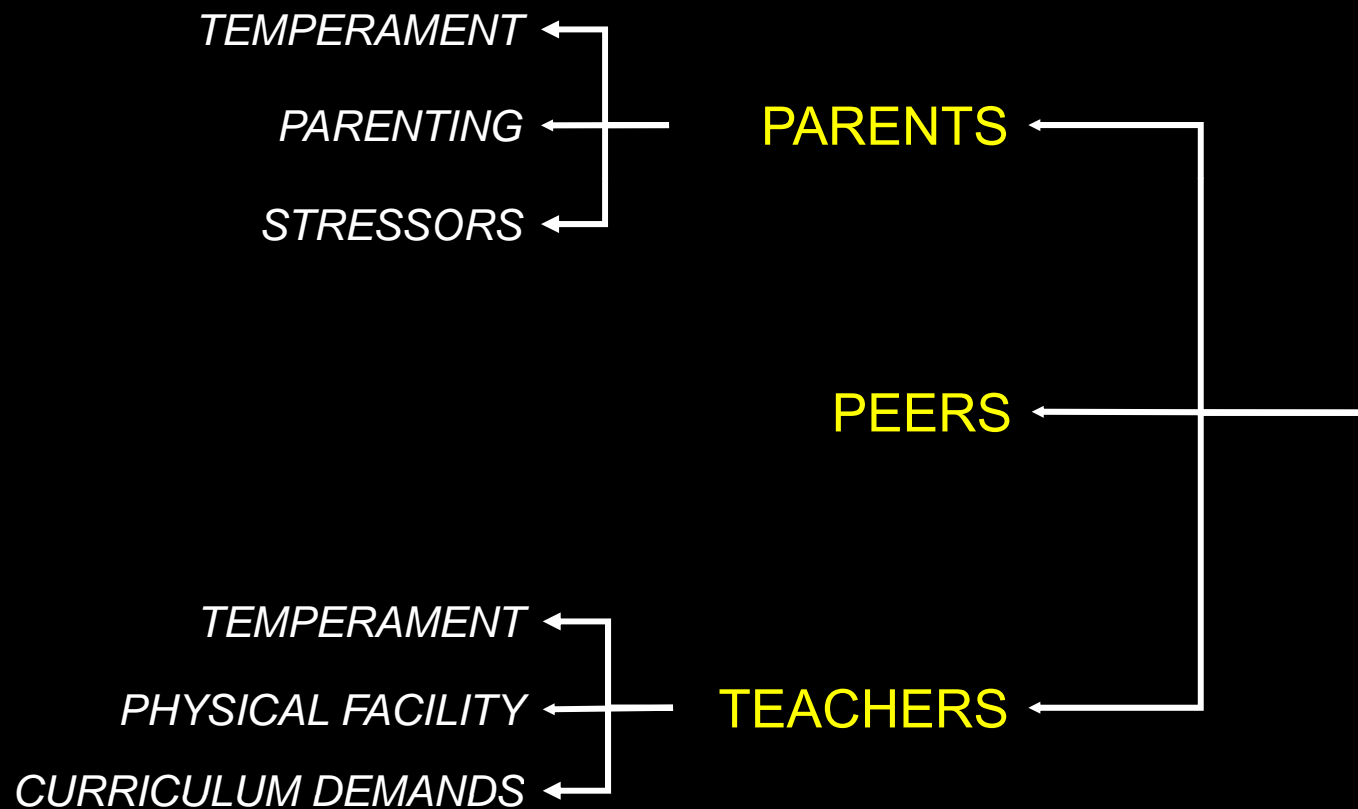
# Medical Factors

---





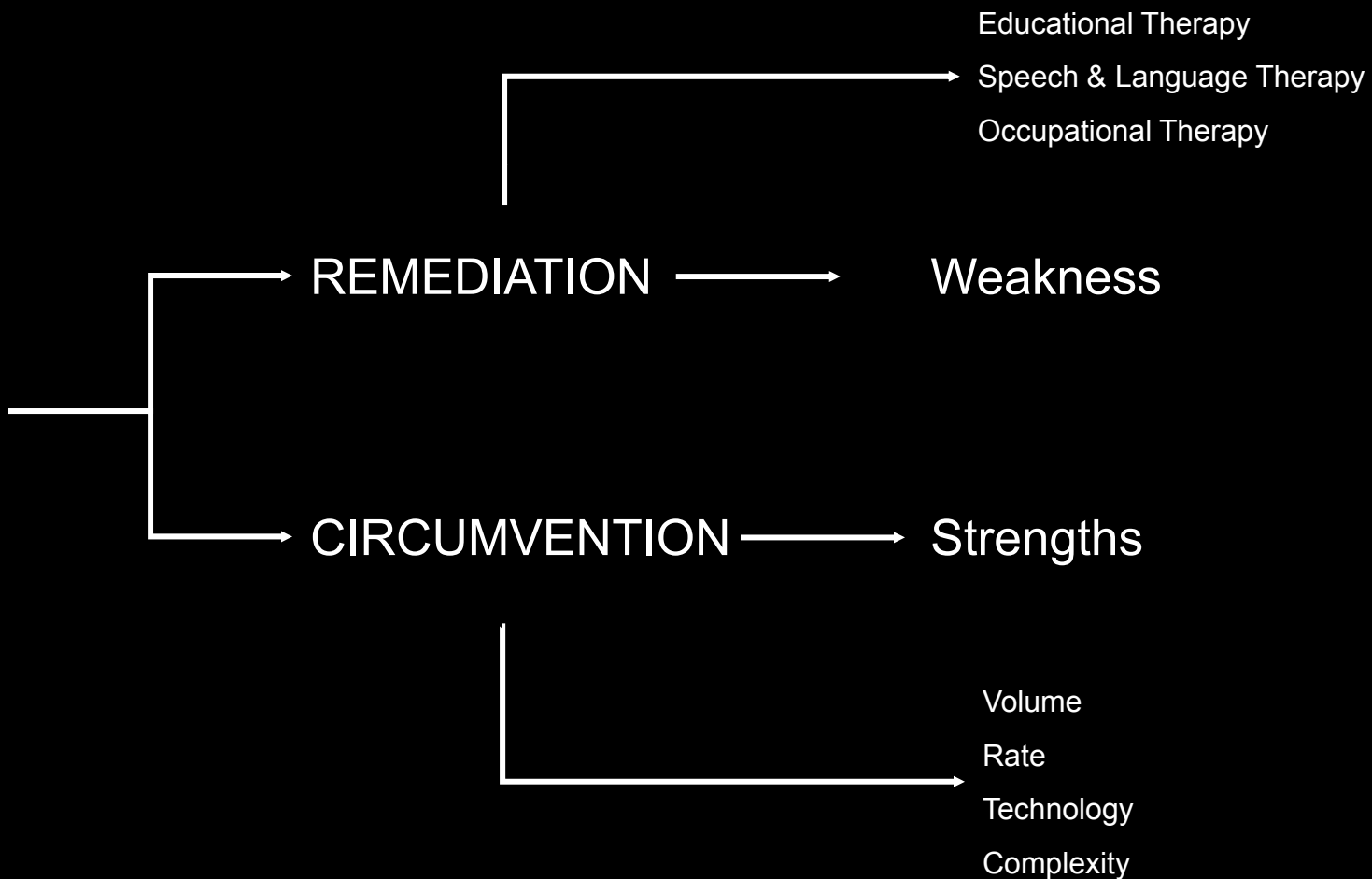
# Environmental Factors



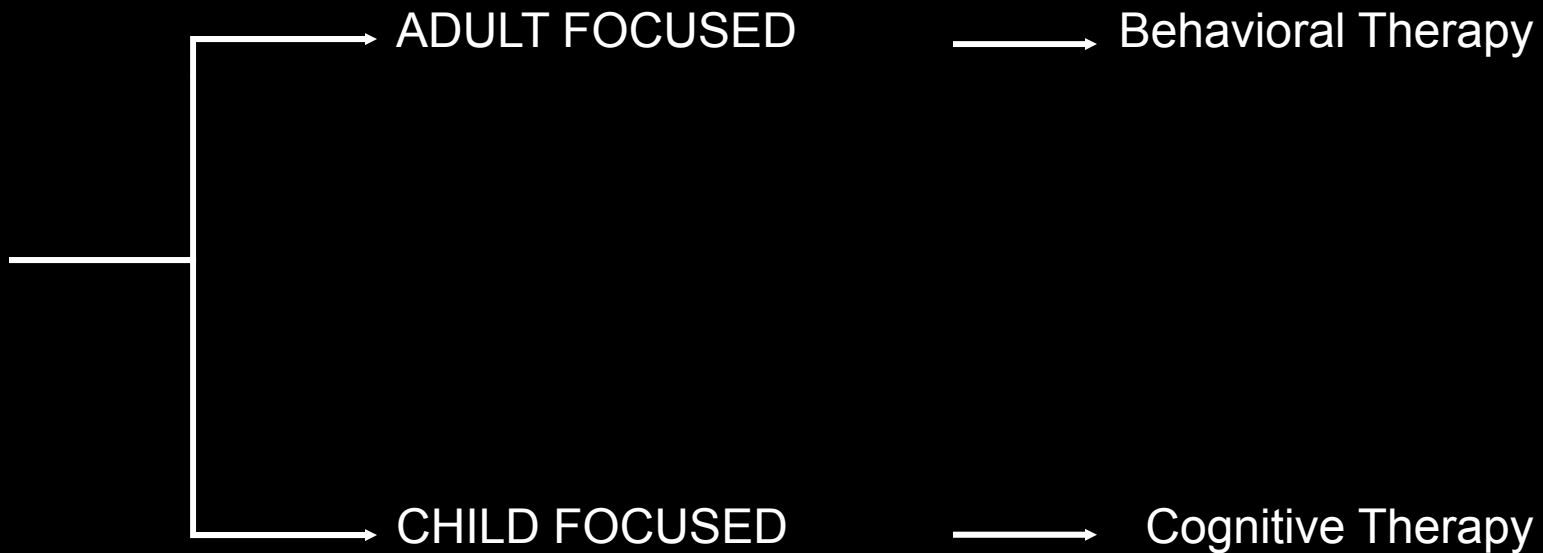
# Developmental Web

*Management*

# Educational Management

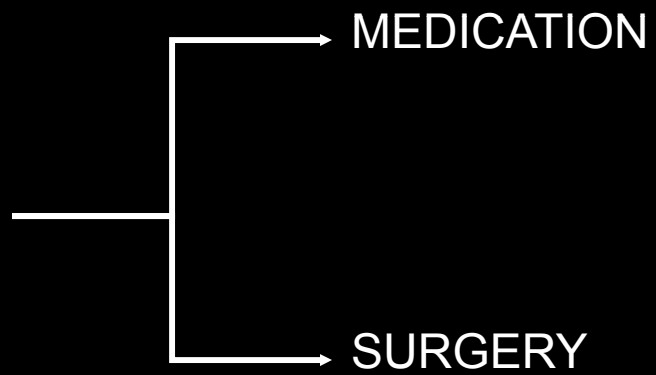


# Psychological Management



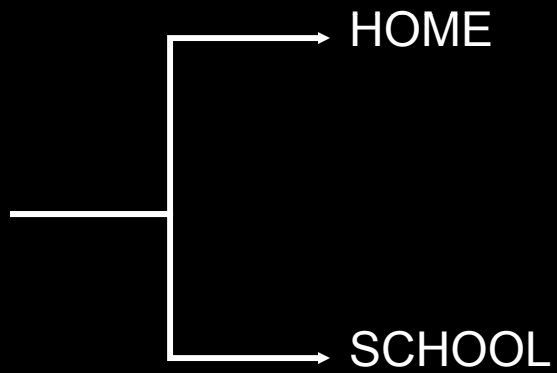
# Medical Management

---



# Environmental Management

---



# Dyslexia

Etiology

# Phonological Processing



# Phonology

---

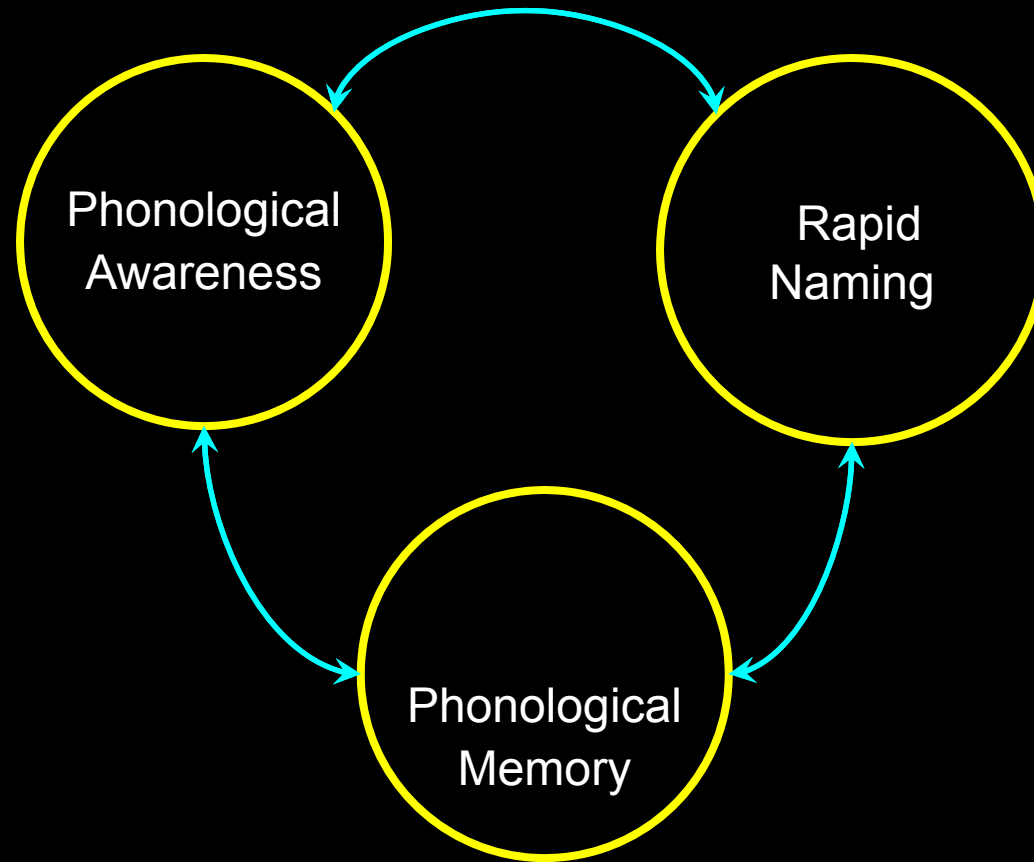
- Phoneme:
  - Building block of words
  - Smallest unit of speech
  - There are 40 - 52 phonemes in the English language
  - Are put together to form words
- Words can be broken down into their elemental sounds allowing us to decipher words
- *Deficits in phonology strongly correlate with reading problems*

# Phonologic System

---

- Processing and production of speech sounds
- Earliest language system to develop
- It is natural – does not have to be taught
- It is the foundation of language

# Phonological Processing Deficits



# Fluency

---

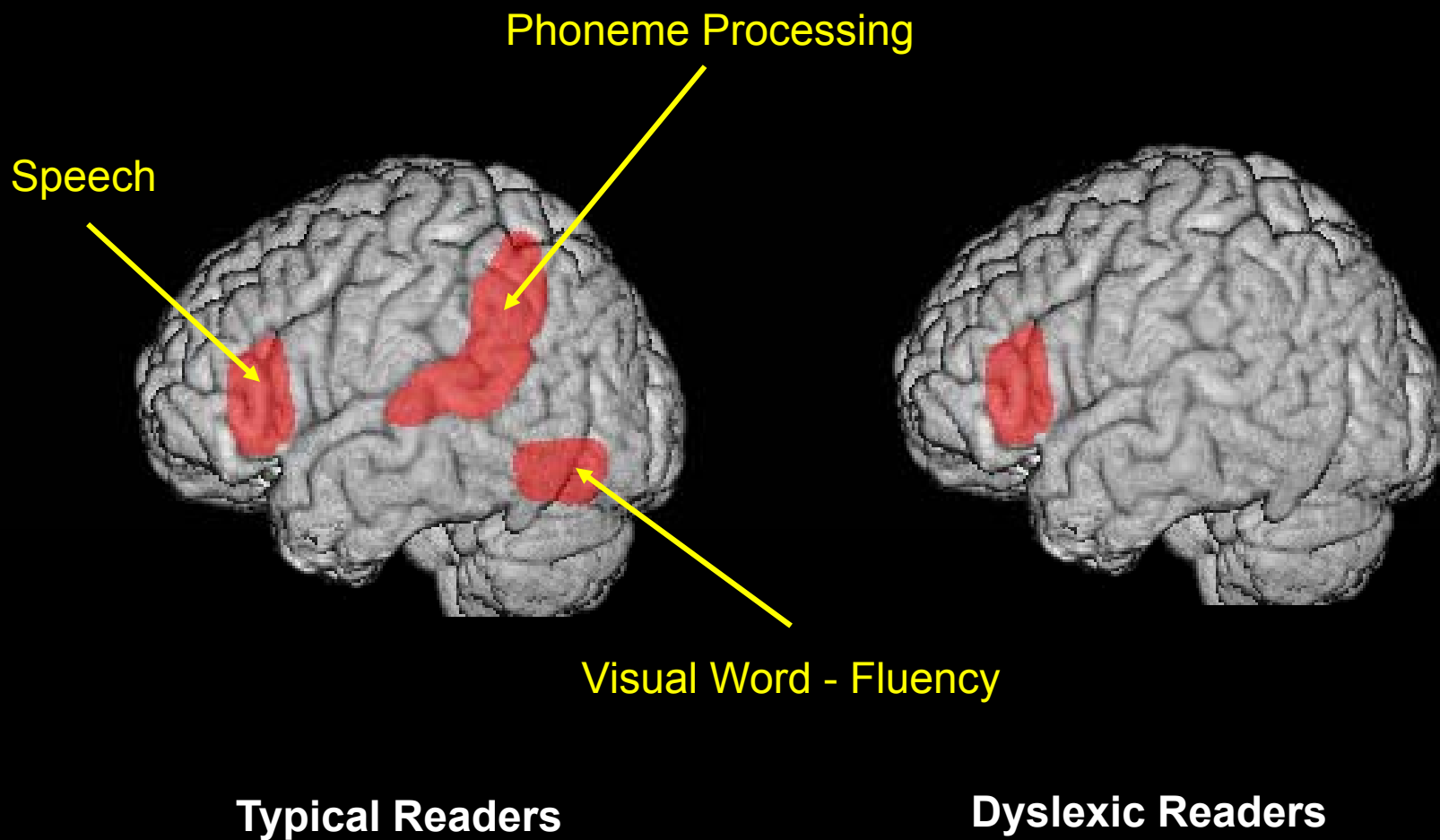
- The ability to read text
  - Quickly
  - Accurately
  - With good understanding
- The hallmark of a good reader
- Is the bridge between decoding and comprehension
- It is acquired word-by-word

# Dyslexia Etiology

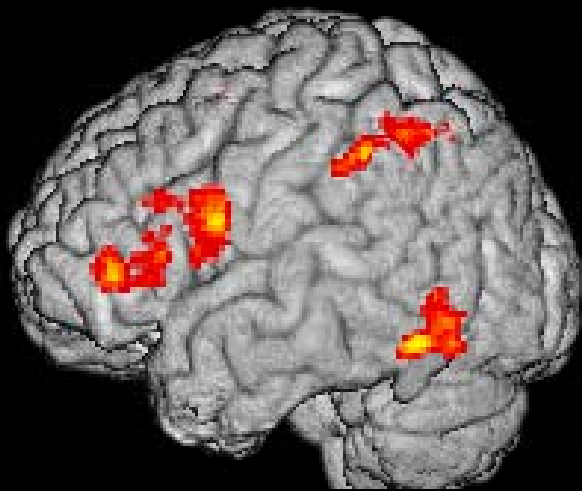
---

- Language problem specific to the *Phonologic Module*
  - Functional part of the brain where
    - Sounds of language (phonemes) are put together to form words
    - Words are broken down into their elemental sounds (phonemes)
    - Discriminates words from noise
  - Learning to read is not a natural biological process

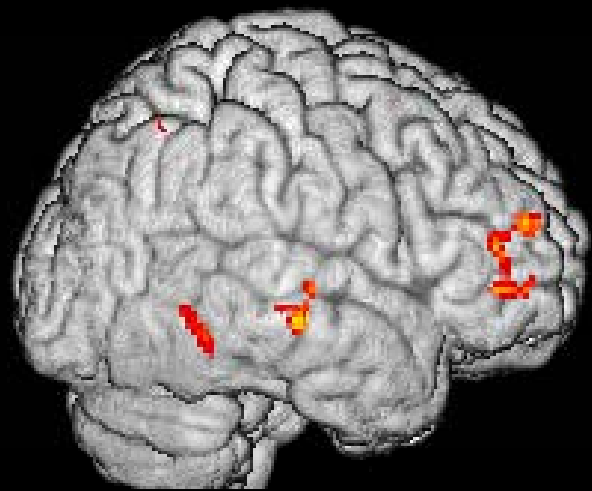
# Dyslexia: Neurobiology



# Typical Readers: Elision versus Repetition

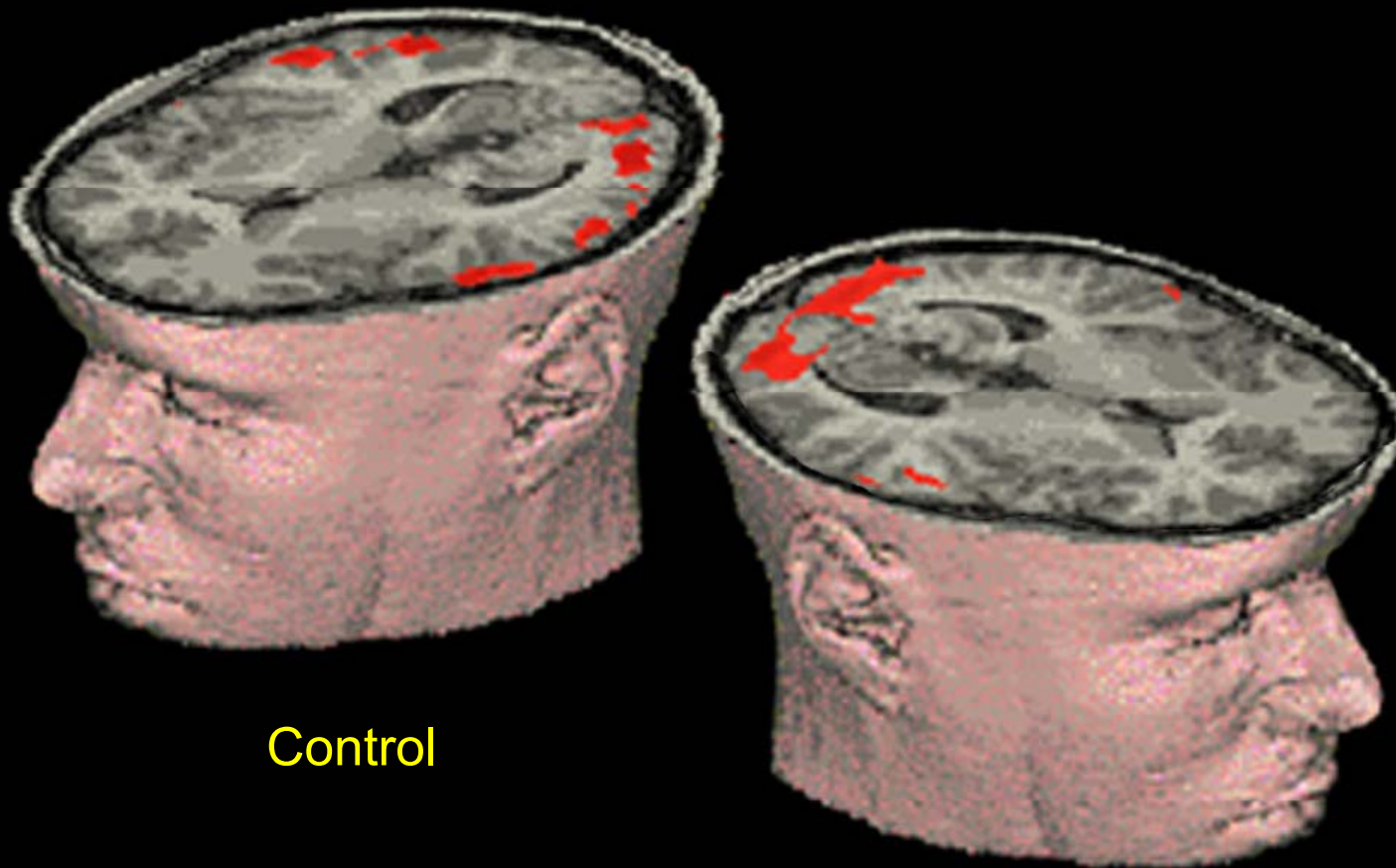


left



right

# Dyslexia: Neurobiology



Control

Dyslexic

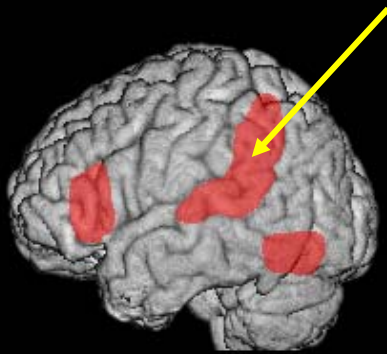
Eden et al. Nature 1996



# Reading: Neurobiology

## Phonological processing

Phoneme Processing



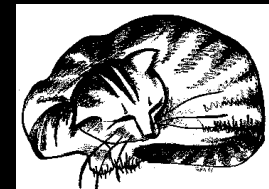
cat



k

æ

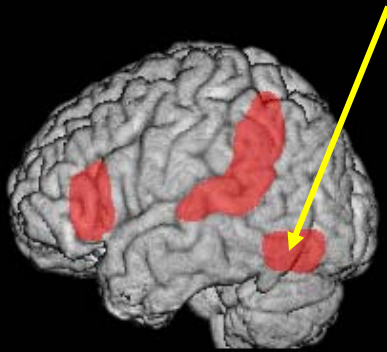
t



# Reading: Neurobiology

## Visual - Fluency

Visual Word - Fluency



# Reading Disability

---

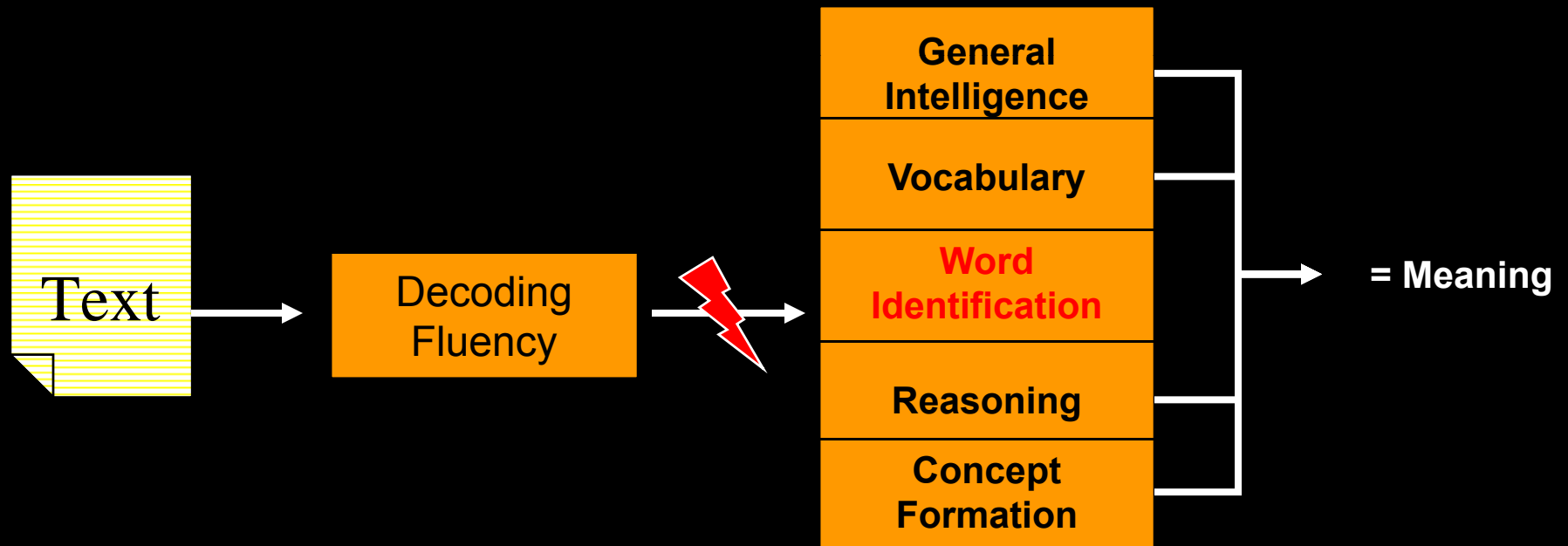
$$(D \times F) + C = \text{Reading}$$

D = Decoding

F = Fluency

C = Comprehension

# Reading Disability



# Early Identification

What to look for

# Early Signs of Dyslexia

---

- By age of onset:
  - Delay in speaking
  - Difficulty in pronunciation
  - Insensitivity to rhyme
  - Poor word retrieval or word finding
  - Naming the letters and their sounds

# Early Signs of Dyslexia

---

- **Infants and toddlers**
  - Delay in speaking
    - *First word by 1 year*
    - *Phrases by 18 - 24 months*
    - *Parents may ascribe it to family history*
      - Speech delay *and* dyslexia are familial

# Early Signs of Dyslexia

- **Preschool years**
  - Difficulty in pronunciation
    - No “baby talk” by 5 or 6 years of age
    - Typical problems:
      - *What to listen for*
        - » Omission of initial sounds: *lephant for elephant, chi-en for chicken*
        - » Inverting sounds: *aminal for animal*



# Early Signs of Dyslexia

---

- **Preschool years**
  - Insensitivity to rhyme
    - Unable to recite nursery rhymes
      - *Children that remember nursery rhymes tend to be good readers*
    - Unable to differentiate between similar and different words
      - Can not focus on parts of the words
        - » What rhymes with: *food, talk*

# Early Signs of Dyslexia

---

- Poor word retrieval or word finding
  - *Talking around a word (circumlocution)*
  - *Uses words like “stuff” or “things”*

# Early Signs of Dyslexia

---

- Naming the letters and their sounds
  - Before entering Kindergarten
    - *Knows the names of upper and lower case letters*
  - Before entering 1<sup>st</sup> grade
    - *Knows the names and sounds of letters*
    - *Alphabetic principle*
      - *Sequence of letters = number and sequence of sounds*
    - *Matches beginning sounds of words*
    - *Pronounces beginning sounds of words*
    - *Counts phonemes in small words*

# Early Signs of Dyslexia

---

- Typical development
  - 4 – 6 y/o aware that words come apart
  - 6 y/o 70% can count phonemes in small words
- Early signs of dyslexia
  - *After 1 year of reading instruction (end of 1<sup>st</sup> grade) can't separate sounds of spoken word*

# Common Signs of Dyslexia

---

- Problems with:
  - Phoneme segmentation
  - Phoneme deletion
  - Specific word retrieval (i.e. tornado for volcano, prostitute for prosecute)
  - Rapid word retrieval

# History Screening: Infancy

	Y	N
• Single words by 1 yr	<input type="checkbox"/>	<input type="checkbox"/>
• Phrases by 2 yrs	<input type="checkbox"/>	<input type="checkbox"/>
• Family history of language or reading problems	<input type="checkbox"/>	<input type="checkbox"/>

# History Screening: Preschool

## *End of K – 4*

	Y	N
• Omission of sounds	■	■
– Eliminates initial sounds (i.e., lephant for elephant)		
• Inverts sounds	■	■
(aminal for animal)		
• Insensitivity to rhyme	■	■
– Can't memorize nursery rhymes		
– Can't tell if words rhyme		
• Does not know lower case alphabet	■	■

# History Screening: Kindergarten

By the end of year <u>CAN NOT:</u>	Y	N
• Name upper and lower case alphabet	<input type="checkbox"/>	<input type="checkbox"/>
• Name most letter sounds	<input type="checkbox"/>	<input type="checkbox"/>
• Match beginning sounds to words	<input type="checkbox"/>	<input type="checkbox"/>
• Pronounce beginning sounds of words	<input type="checkbox"/>	<input type="checkbox"/>



# History Screening: 1<sup>st</sup> Grade

*By the end of year CAN NOT:*

- Can separate and / or count sounds in a word
- Find the right words

Y

N



# Screening Test: End of 1<sup>st</sup> Grade

• Alphabetic principle	P	F
– Names beginning letters of words	■	■
– Names beginning sounds of words	■	■
– Names ending letters of words	■	■
– Names ending sounds of words	■	■
– Can tell # of sounds in a word	■	■

# Screening Test: K.5 and 1<sup>st</sup> Grade

	P	F
• Rhyming		
– Say a word that rhymes with		
• Food	■	■
• Walk	■	■
– Can recite a rhyme	■	■

# History Screening: Infancy

	Y	N
• Single words by 1 yr	<input type="checkbox"/>	<input type="checkbox"/>
• Phrases by 2 yrs	<input type="checkbox"/>	<input type="checkbox"/>
• Family history of language or reading problems	<input type="checkbox"/>	<input type="checkbox"/>

# History Screening: Preschool

## *End of K – 4*

	Y	N
• Omission of sounds – Eliminates initial sounds (i.e., -lephant for elephant, chi-en for chicken)	■	■
• Inverts sounds (aminal for animal)	■	■
• Insensitivity to rhyme – Can't tell if words rhyme	■	■
• Does not know lower case alphabet	■	■

# History Screening: Kindergarten

By the end of year **CAN NOT:**

- Name upper and lower case alphabet
- Name most letter sounds
- Match beginning sounds to words
- Pronounce beginning sounds of words

Y

N



# History Screening: 1<sup>st</sup> Grade

*By the end of year CAN NOT:*

- Can separate and / or count sounds in a word
- Find the right words

Y

N



# Screening Test: End of 1<sup>st</sup> Grade

- |                                    | <b>P</b>              | <b>F</b>              |
|------------------------------------|-----------------------|-----------------------|
| • Alphabetic principle             |                       |                       |
| – Reads the words accurately       | <input type="radio"/> | <input type="radio"/> |
| – Names beginning letters of words | <input type="radio"/> | <input type="radio"/> |
| – Names beginning sounds of words  | <input type="radio"/> | <input type="radio"/> |
| – Names ending letters of words    | <input type="radio"/> | <input type="radio"/> |
| – Names ending sounds of words     | <input type="radio"/> | <input type="radio"/> |
| – Can tell # of sounds in a word   | <input type="radio"/> | <input type="radio"/> |



# Screening Test: K.5 and 1<sup>st</sup> Grade

- |                               | P                     | F                     |
|-------------------------------|-----------------------|-----------------------|
| • Rhyming                     |                       |                       |
| – Say a word that rhymes with |                       |                       |
| • Food                        | <input type="radio"/> | <input type="radio"/> |
| • Walk                        | <input type="radio"/> | <input type="radio"/> |

# Intervention

What to do about it.

# Research Based Reading Instruction

- Essential Components
  - *Phonemic awareness*
    - Recognize, remember and manipulate individual sounds
  - *Phonics and word recognition*
    - Sound – symbol relationship, word meaning
  - *Reading Fluency*
    - Read with sufficient speed and accuracy to support comprehension
  - *Vocabulary development*
    - Individual word meanings
  - *Reading comprehension*
    - Verbal reasoning, background knowledge, comprehension strategies

# Reading Instruction

---

- Other components
  - *Basic writing skills*
    - Compose English with accuracy, fluency and clarity of expression
  - *Comprehending and using language*
    - The ability to listen and understand the meaning of what someone is saying

# Effective Reading Instruction

- *Explicit*
  - Clearly and directly explained not left to discovery
- *Systematic*
  - The speech sounds, spelling patterns, sentence structures, text genre and language conventions
- *Cumulative*
  - Continual review one skill builds on another
- *Multisensory*
- *Sequential and Incremental*
  - Manageable steps
- *Data driven*
  - Emphasis, speed of instruction and support are determined by student's progress

# Dyslexia: Management

---

- Critical to start before 3<sup>rd</sup> grade
- It is almost impossible to remediate after 4<sup>th</sup> grade

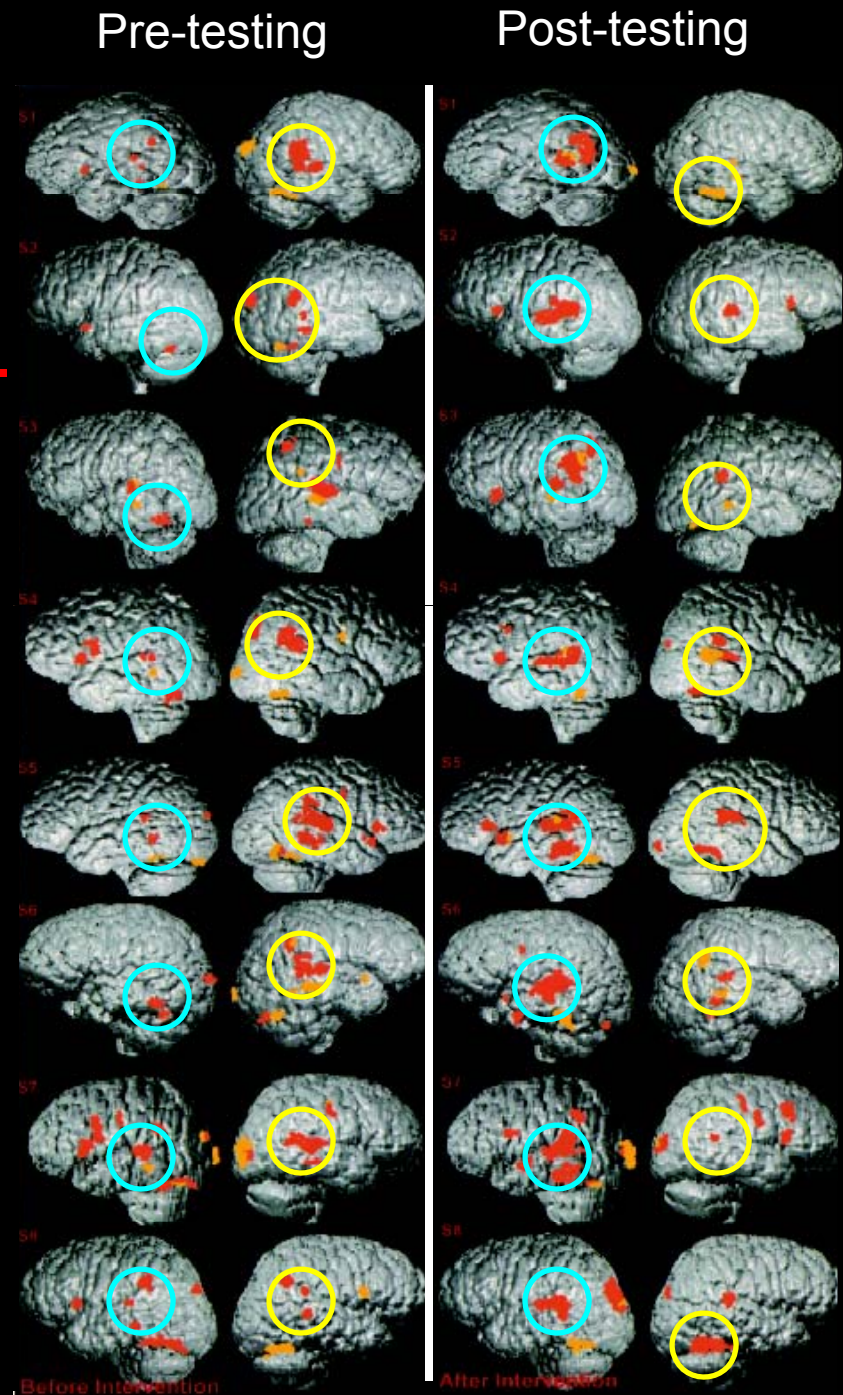
# Early Intervention IS Urgent

- **10<sup>TH</sup> %ile 5<sup>th</sup> Grade reader**
  - 50,000 words/year
- **50<sup>TH</sup> %ile 5<sup>th</sup> grade reader**
  - 600,000 words/year
- **Average students receive approximately 10 TIMES as much practice in a year**

Percentile Rank	Minutes Per Day		Words Read Per Year	
	Books	Text	Books	Text
98	65.0	67.3	4,358,000	4,733,000
90	21.2	33.4	1,823,000	2,357,000
80	14.2	24.6	1,146,000	1,697,000
70	9.6	16.9	622,000	1,168,000
60	6.5	13.1	432,000	722,000
50	4.6	9.2	282,000	601,000
40	3.2	6.2	200,000	421,000
30	1.8	4.3	106,000	251,000
20	0.7	2.4	21,000	134,000
10	0.1	1.0	8,000	51,000
2	0	0	0	8,000

# Dyslexia: Management

**Dyslexia-specific  
brain activation  
profile becomes  
normal following  
successful remedial  
training**





# What About Attention?

ADHD:

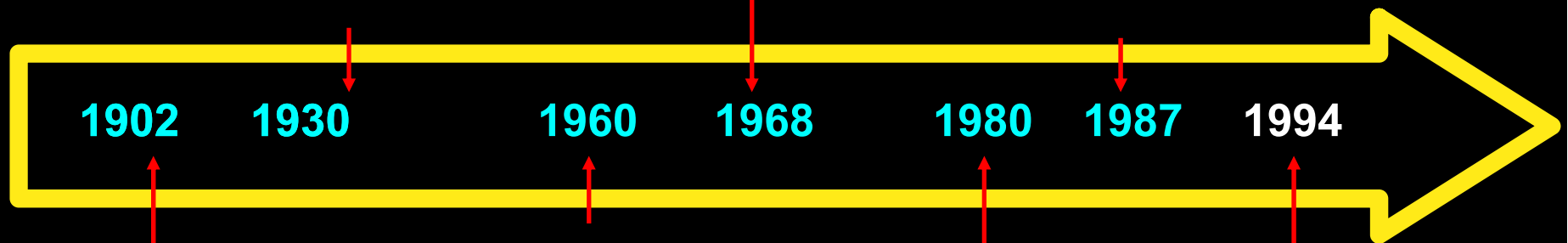
What it is and what is not!

# ADHD: Historical Timeline

Hyperkinetic Reaction  
of Childhood (DSM-II)

Attention Deficit Hyperactivity  
Disorder (DSM-III-R)

Minimal Brain Damage



Minimal Brain Dysfunction

ADHD-like syndrome  
first described

Attention Deficit Disorder + or -  
Hyperactivity (DSM-III)

Attention Deficit/Hyperactivity Disorder (DSM-IV)

# Diagnostic Criteria for ADHD: *DSM-IV*

---

- Persistent symptoms of inattention and/or impulsivity and hyperactivity
- Onset of symptoms before age 7
- Impairment in 2 or more settings (eg, school, work, home)
- Evidence of clinically significant impairment in social, academic, or occupational functioning
- Symptoms not a result of other disorders

# *DSM-IV* Diagnostic Criteria Symptoms for ADHD

- Inattention ( $\geq 6$ )
  - Is careless
  - Has difficulty sustaining attention in activity
  - Does not listen
  - Does not follow through with tasks
  - Is disorganized
  - Avoids/dislikes tasks requiring sustained mental effort
  - Loses important items
  - Is easily distracted
  - Is forgetful in daily activities

# *DSM-IV* Diagnostic Criteria

## Symptoms for ADHD (cont'd)

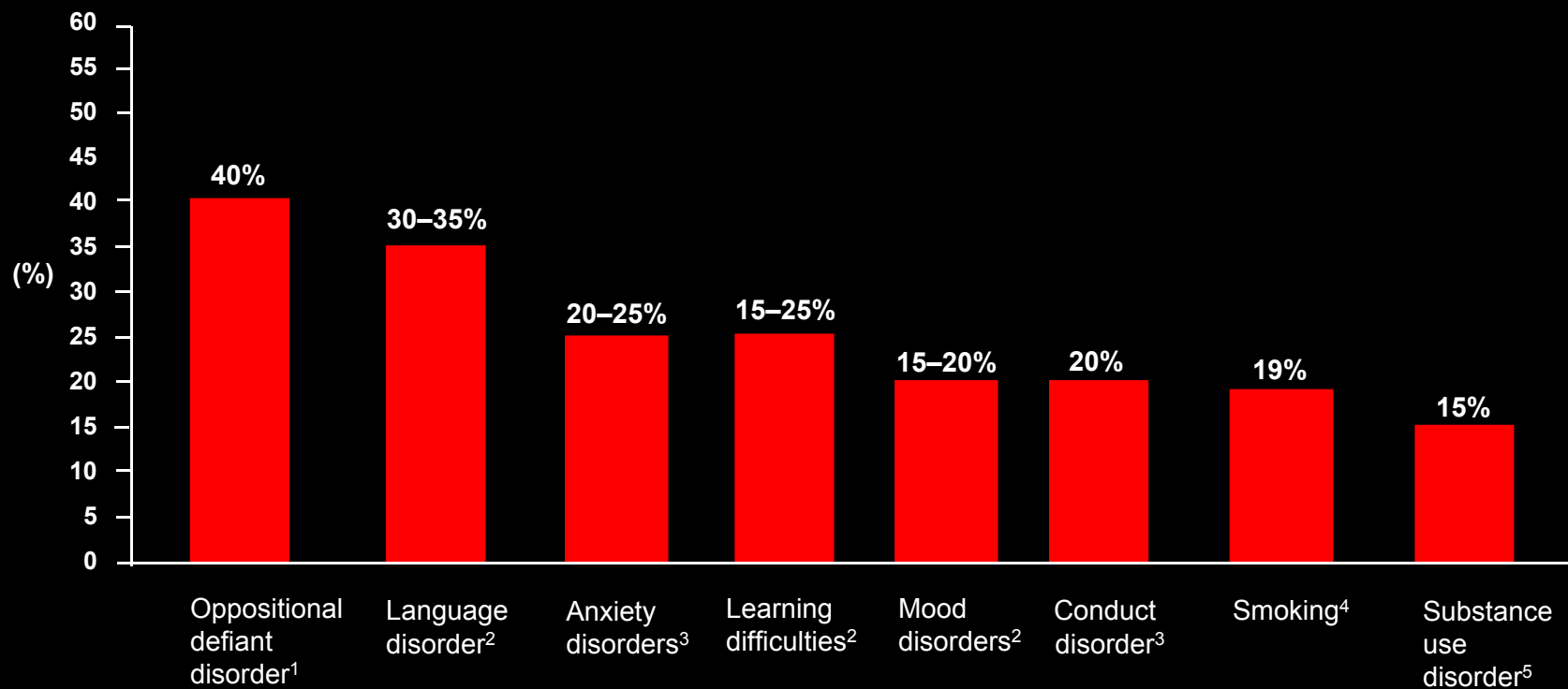
- Hyperactivity ( $\geq 6$ )
  - Squirms and fidgets
  - Cannot stay seated
  - Runs/climbs excessively
  - Cannot play/work quietly
  - Is on the go/driven by a motor
  - Talks excessively
- Impulsivity
  - Blurts out answers
  - Cannot wait turn
  - Intrudes/interrupts others

# ADHD: *DSM-IV* Subtypes

---

- ADHD **Combined Type**
  - Criteria are met for both inattention and impulsivity/hyperactivity ( $\geq 6$  of each)
- ADHD **Inattentive Type**
  - Criteria met for inattention but not for impulsivity/hyperactivity ( $\geq 6$ )
- ADHD **Hyperactive-Impulsive Type**
  - Criteria met for impulsivity/hyperactivity but not for inattention ( $\geq 6$ )

# ADHD: Comorbid Conditions



<sup>1</sup>MTA Cooperative Group. *Arch Gen Psychiatry* 1999; 56:1076–1086.

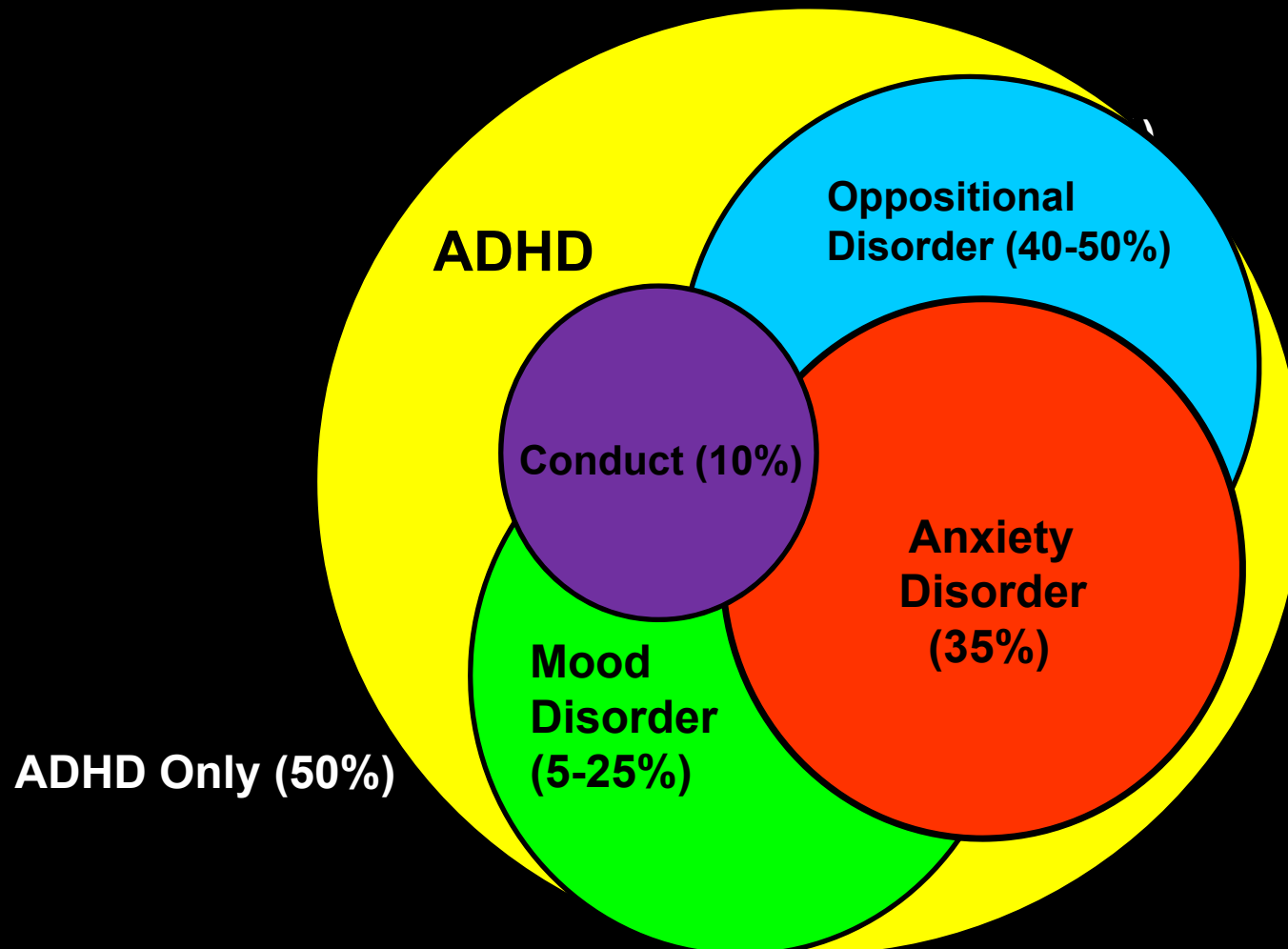
<sup>2</sup>Barkley R. *Attention-deficit Hyperactivity Disorder. A Handbook for Diagnosis and Treatment*, 2nd ed. New York: Guilford Press, 1993.

<sup>3</sup>Biederman J, et al. *Am J Psychiatry* 1991; 148:565–577.

<sup>4</sup>Milberger S, et al. *J Am Acad Child Adolesc Psychiatry* 1997;36:37–44.

<sup>5</sup>Biederman J, et al. *J Am Acad Child Adolesc Psychiatry* 1997;36:21–29.

# Comorbiditys Common With ADHD

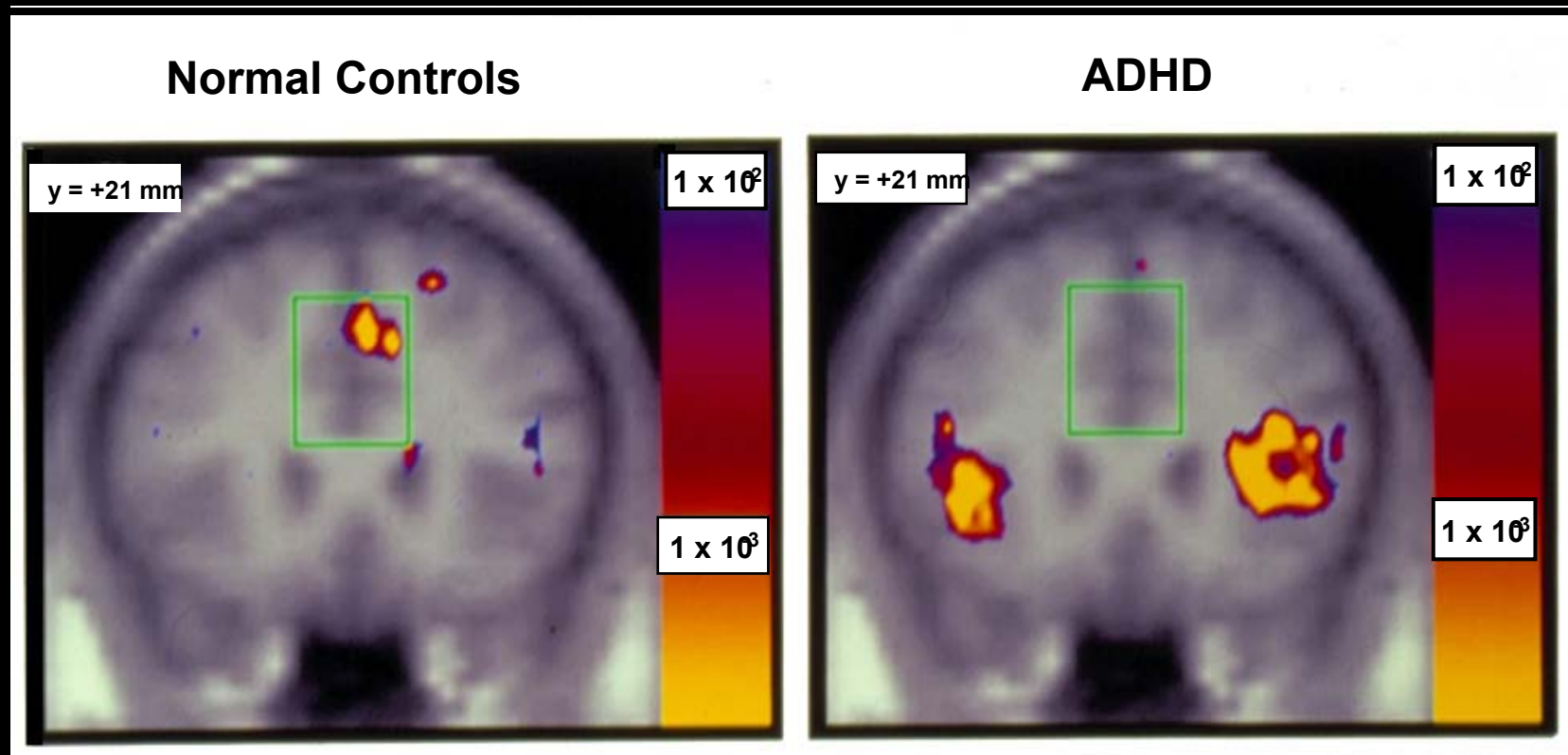






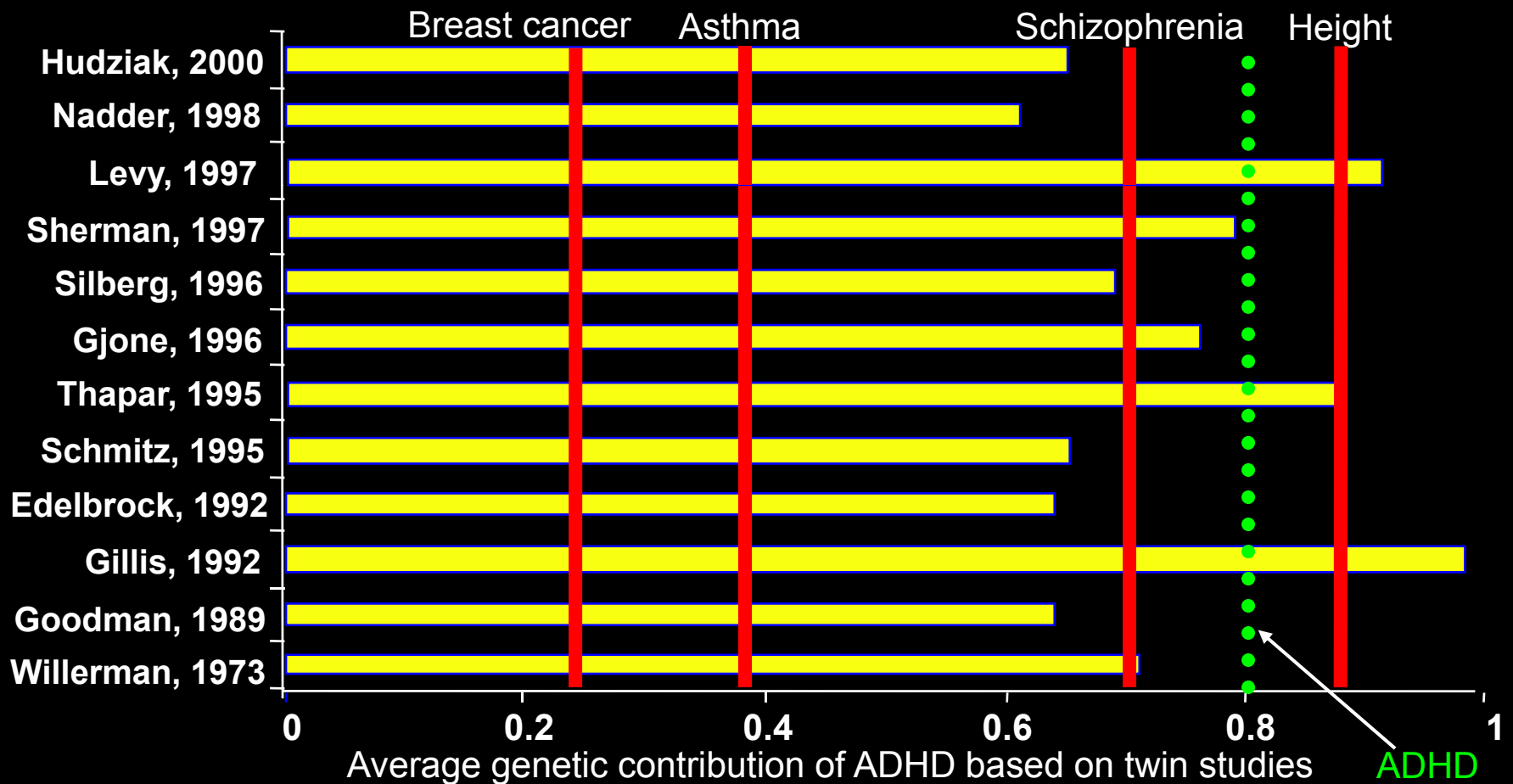
# Etiology

# A Variety of Functional & Structural Differences Appear in the ADHD Brain



MGH-NMR Center & Harvard- MIT CTP Reprinted by permission of Elsevier Science from Anteriorcingulate cingulate cortex dysfunction in ADHD revealed by fMRI and the Counting Stroop , by Bush G, Frazier JA, Rauch SL, et al., *Biological Psychiatry* 45(12), Copyright 1999 by the Society of Biological Psychiatry.

# Twin Studies Show ADHD Is a Genetic Disorder



Faraone. *J Am Acad Child Adolesc Psychiatry*. 2000;39:1455-1457. Hemminki. *Mutat Res*. 2001;25:11-21.  
 Palmer. *Eur Resp J*. 2001;17:696-702.

# Impairment Caused by ADHD

How does it present?  
Impact on quality of life

# Impairment

---

Academic  
Behavioral/Emotional  
Socialization  
Medical

# Impairment

---

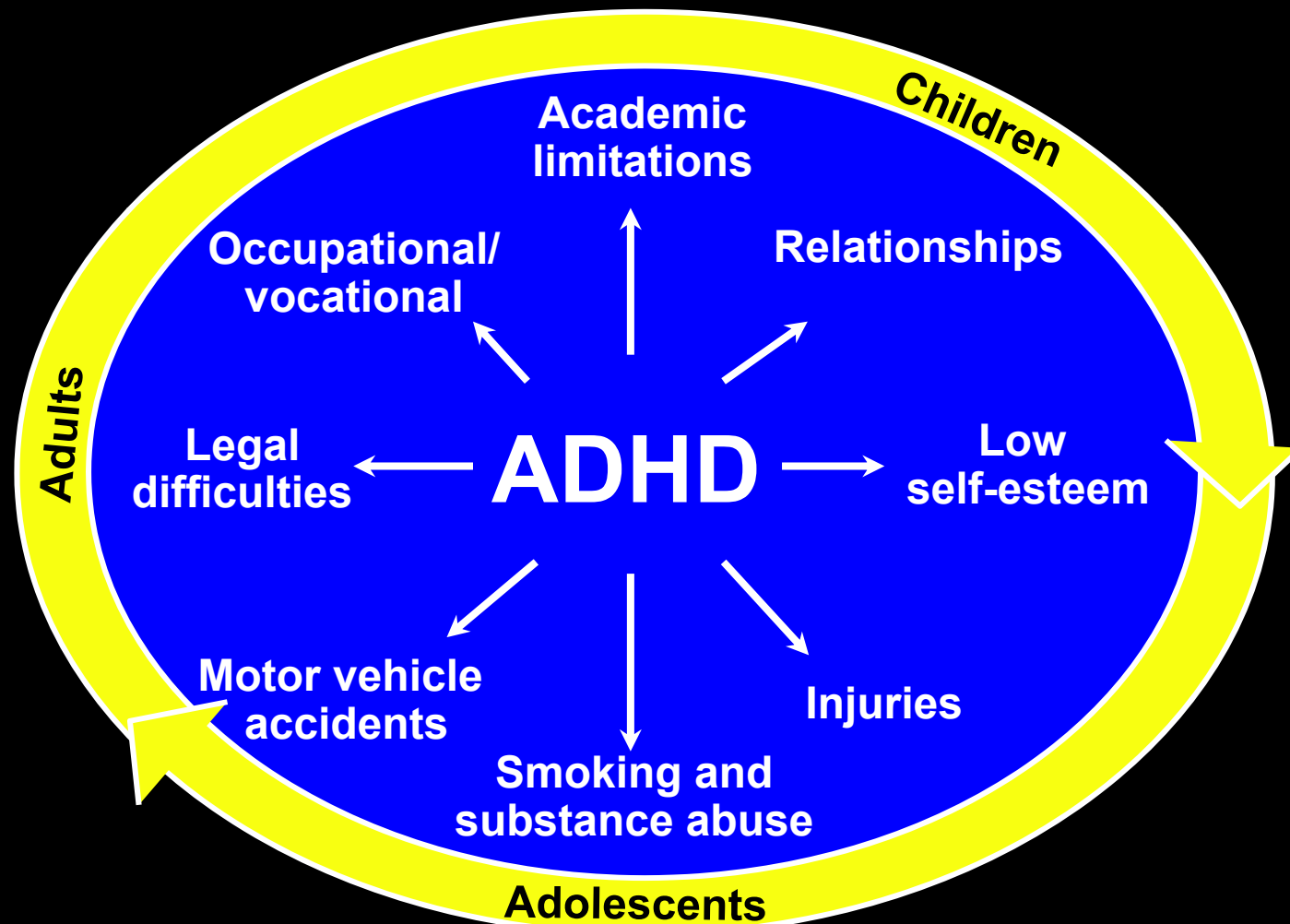
- ADHD is a disorder of performance, not skill
- ADHD disrupts executive function
- ADHD creates problems with self-regulation
- ADHD increases health risks

# Impairment

---

- ACADEMIC
  - *Production vs. Knowledge*
- BEHAVIOR - EMOTIONAL
  - *Spacey/Over-Reactive vs. Defiant*
- SOCIALIZATION
  - *Insatiable vs. Malicious*
- MEDICAL
  - *Cigarette smoking, Car accidents, SUD*

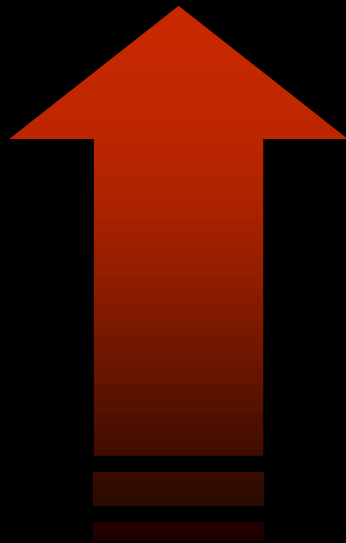
# ADHD: Impairment over time





# ADHD: Impact on Family

Parents of children with ADHD experience higher levels of:



- Stress
- Self-blame
- Social isolation
- Depression
- Marital discord

# ADHD : Adults

## Performance Limitations

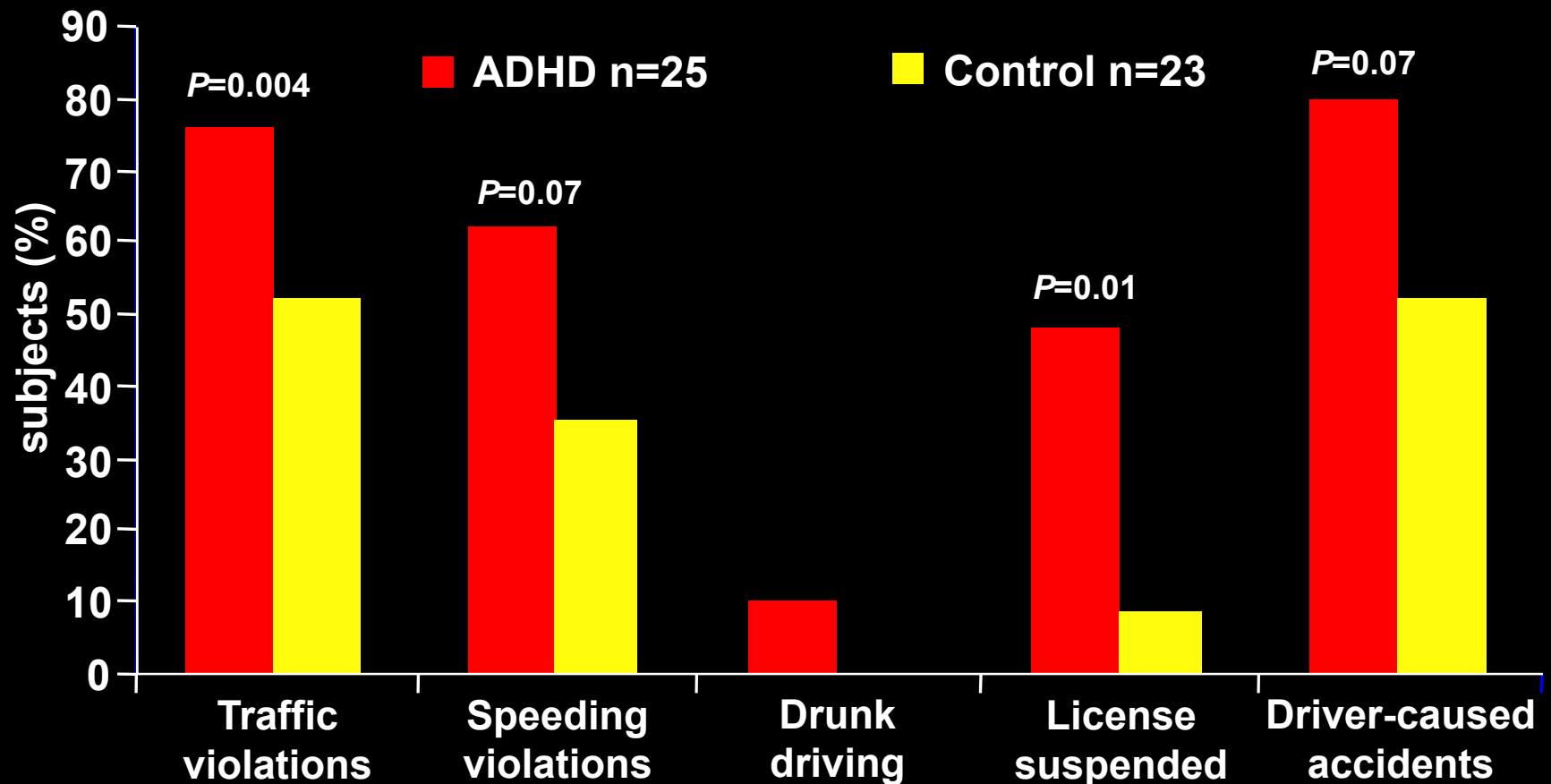
---

- Despite similar educational levels and IQ scores, non-medicated adults with ADHD display:
  - Significantly more academic difficulty in school (25% repeat a grade)
  - Lower levels of occupational advancement

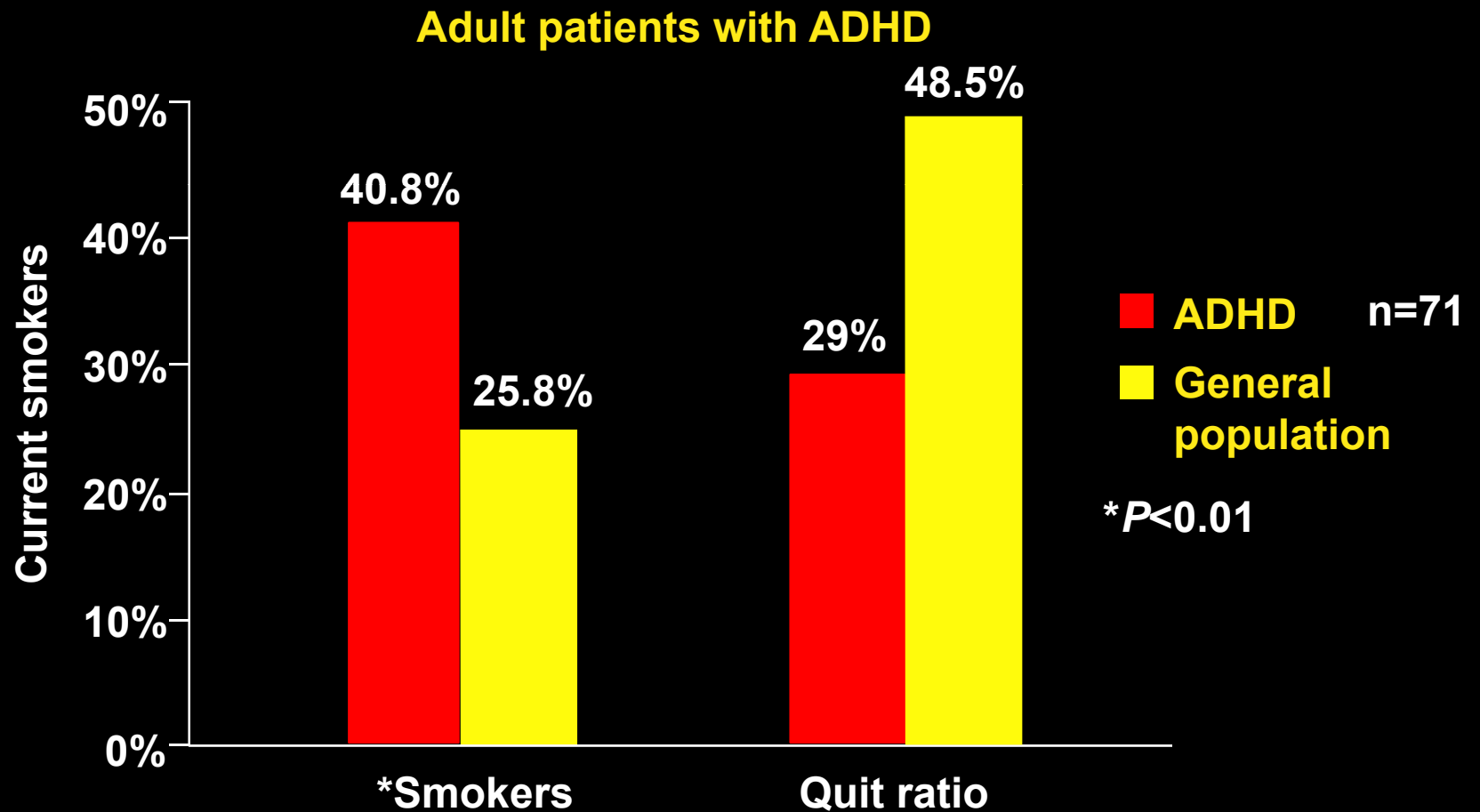
# ADHD Affects Socialization

- Children are stigmatized by their behavior
  - Disruptive behavior
    - Troublemakers
    - Bad sportsmanship
    - Excessive talking
    - Cannot sit still
    - Unfocused, not responsive to others
    - Impulsive aggression
  - Immaturity and impulsiveness
    - Center of attention
    - Breaks the rules
    - Blurting out answers
    - Peer rejection
- Adolescents continue to demonstrate social problems
  - Poor participation in group activities
  - Few friends
  - Vulnerable to antisocial groups, drug abuse

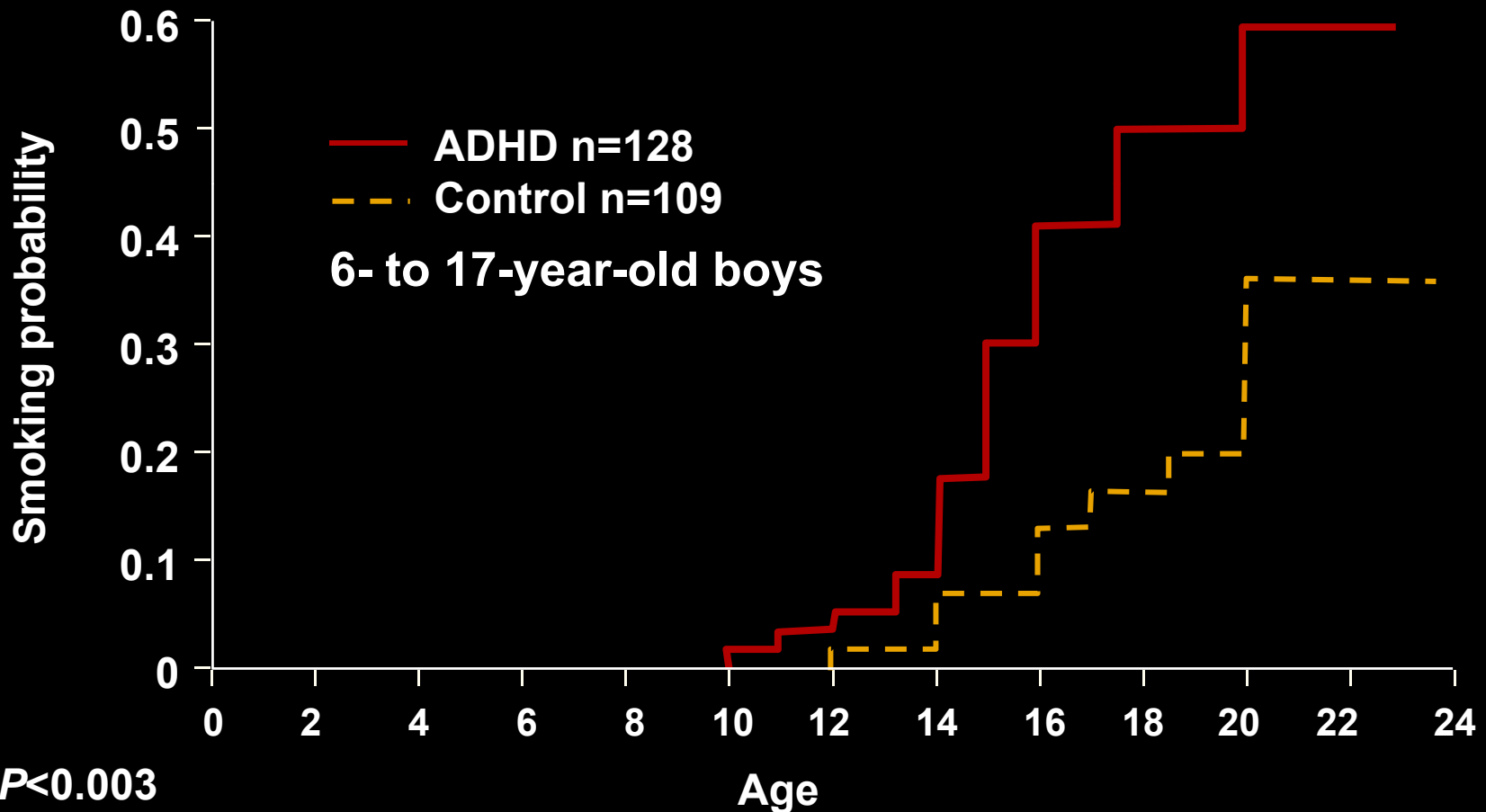
# Increased Traffic Violations and Motor Vehicle Accidents in Adolescents and Adults with ADHD



# Increased Smoking with ADHD

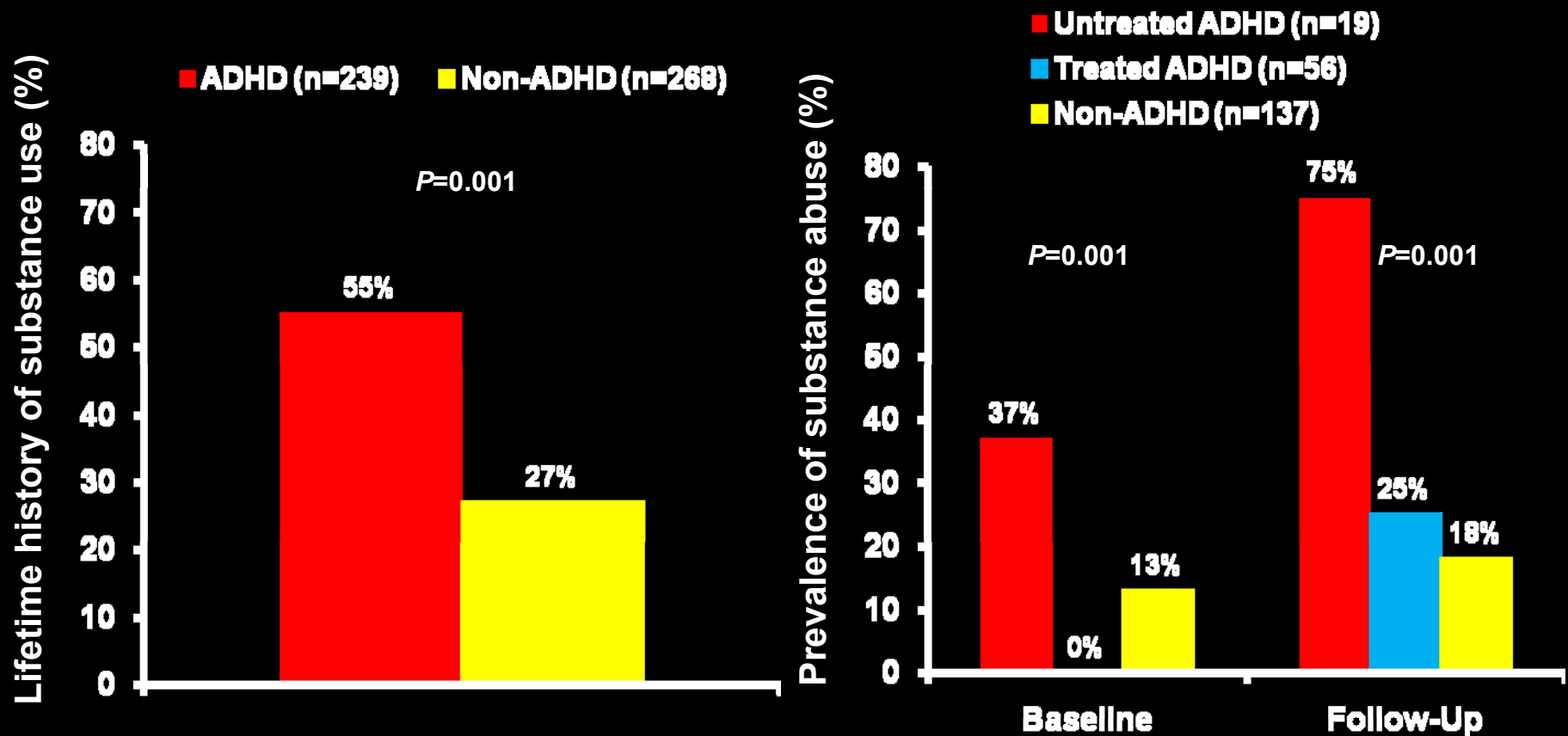


# Earlier Initiation of Smoking with ADHD



Milberger S, et al. *J Am Acad Child Adolesc Psychol.* 1997;36:37-44.

# Untreated ADHD Is Associated With Higher Risk of Substance Abuse



Biederman J, et al. *Biol Psychiatry*. 1998;44:269-273.  
Biederman J, et al. *Pediatrics*. 1999;104:e20-e25.

# Adolescent & Adult Outcome

---

- Symptoms Persist in 50-65%
- Associated Problems
  - Conduct
  - Emotional
  - Socialization
  - Education
  - Employment
- Satisfactory Outcome in 60-70%



# Management of ADHD

# Good Management of ADHD Involves Multimodal Therapy

## Multimodal Therapy

```
graph TD; A[Multimodal Therapy] --> B[Medication]; A --> C[Psychosocial Therapy]; B --> D[Normalization in Many Areas]; C --> D;
```

### Medication

Stimulants

Antidepressants

SNRI's

### Psychosocial Therapy

Parent Training

Child-Focused Treatment

School-Based Intervention

Normalization in Many Areas

# MTA Study Objective and Design

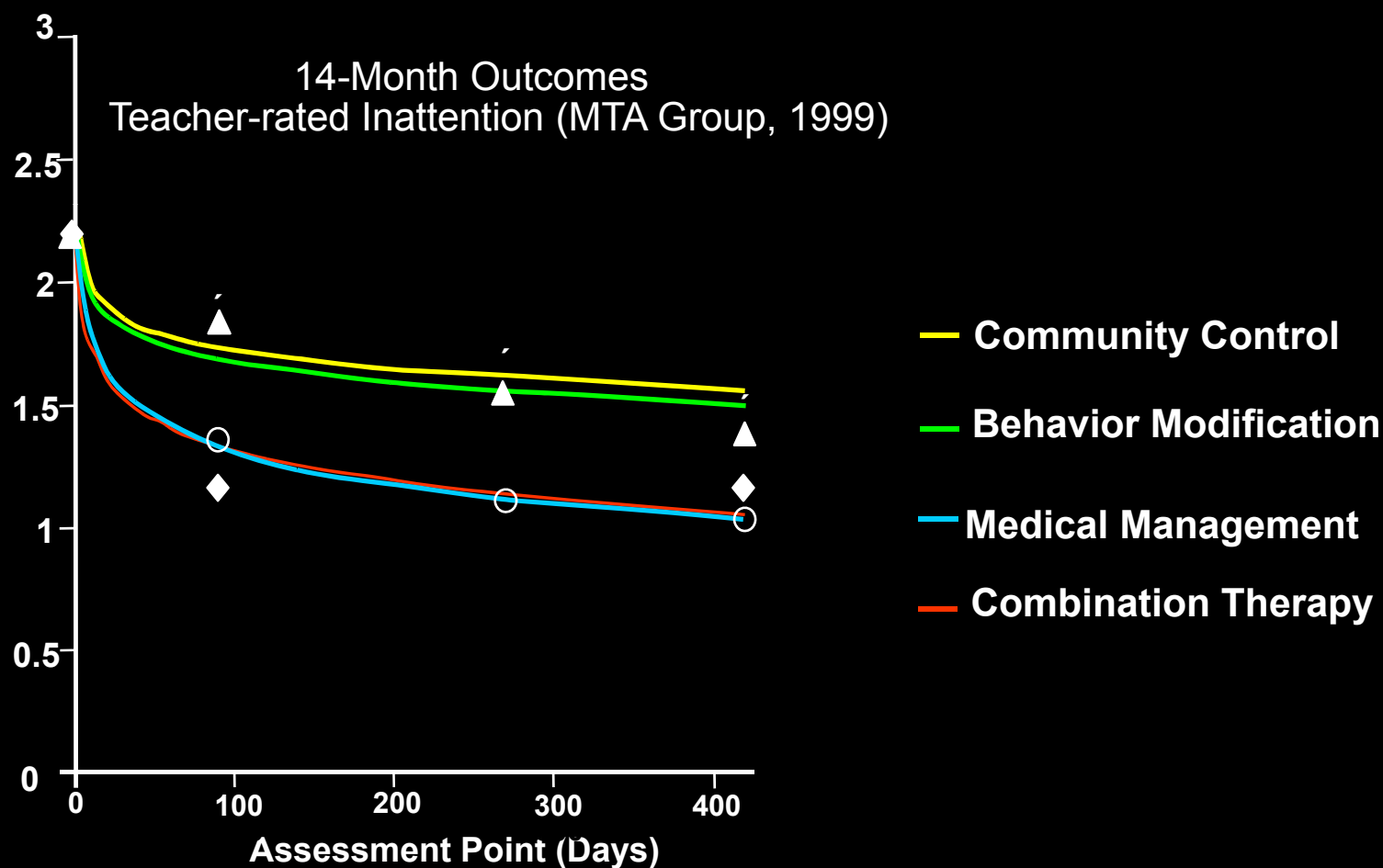
## Objective:

- To compare the long-term efficacy of pharmacotherapy, behavioral therapy, and combination therapy in the treatment of ADHD

## Protocol:

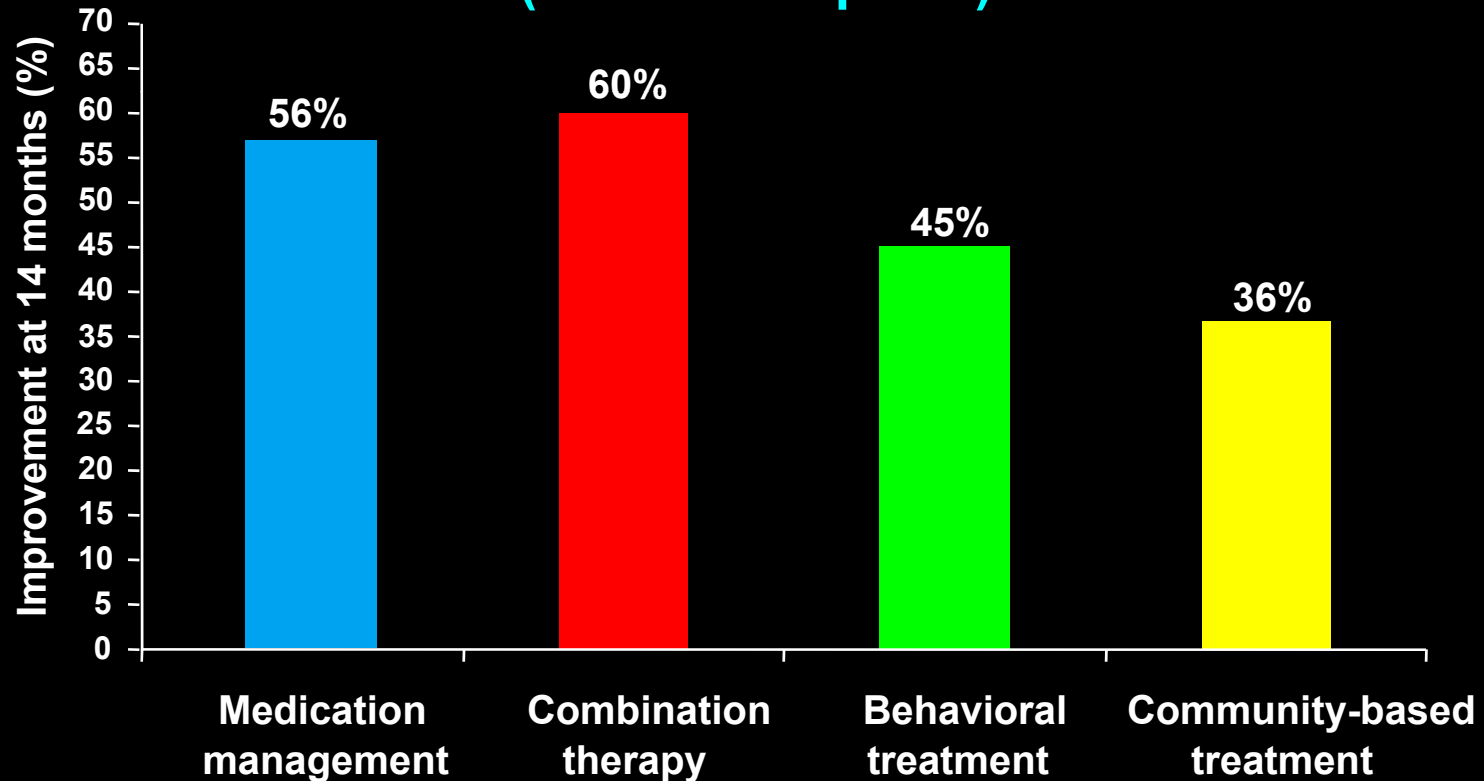
- Population: 579 children with ADHD combined type, aged 7-9.9 years
- In a 4-group parallel design, children randomly assigned to:
  - Medication alone (primarily methylphenidate)
  - Behavioral therapy alone
  - Combination of medication and behavioral treatment
  - Routine community care (medication and behavioral treatment)
- Duration of study treatment: 14 months

# MTA Study: Treatment Outcome: Teacher-Rated Inattention

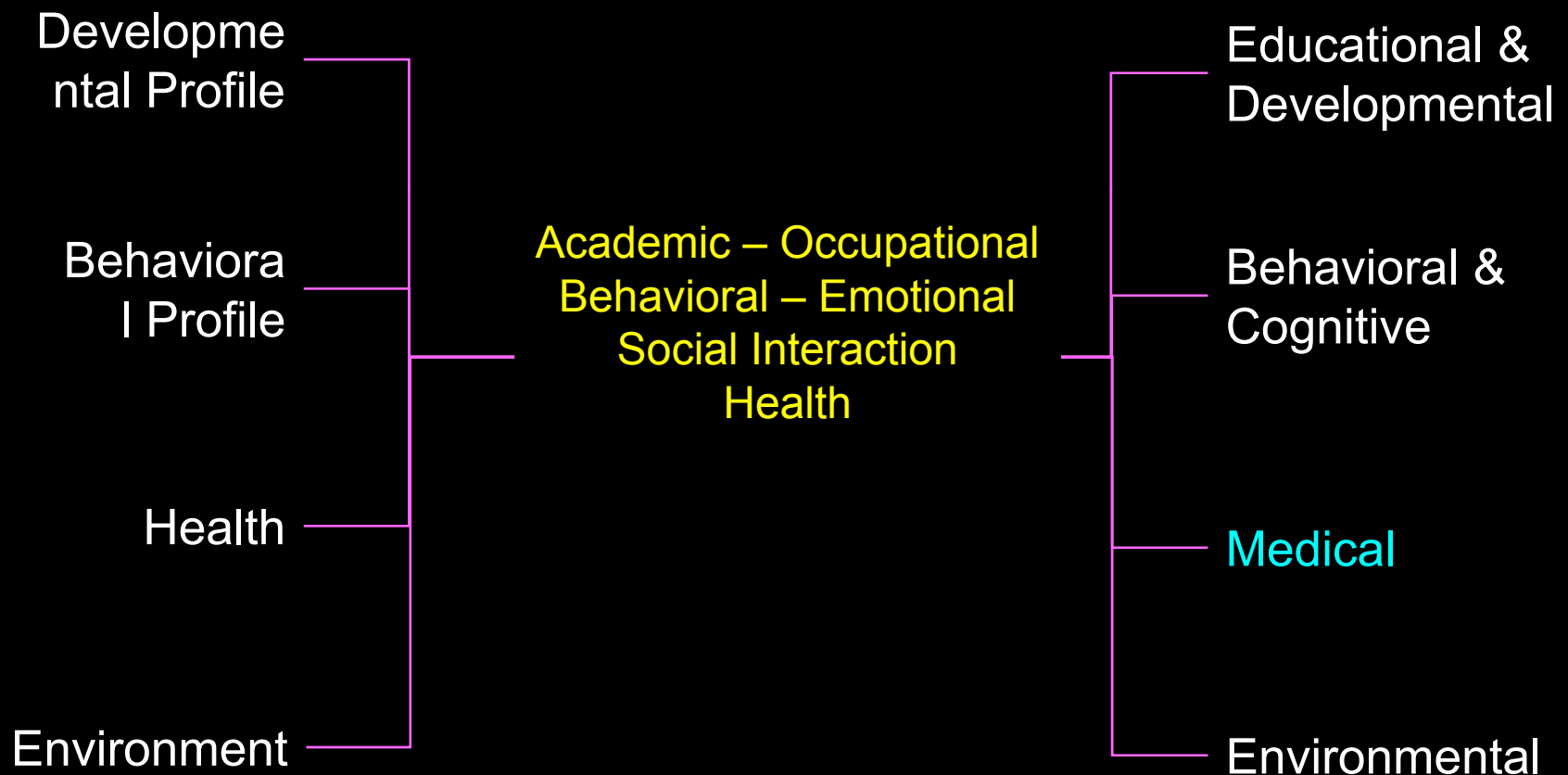


# Long-term Outcomes of Therapies for ADHD in the MTA Study

## Hyperactive Impulsive Symptoms (Teacher Reports)



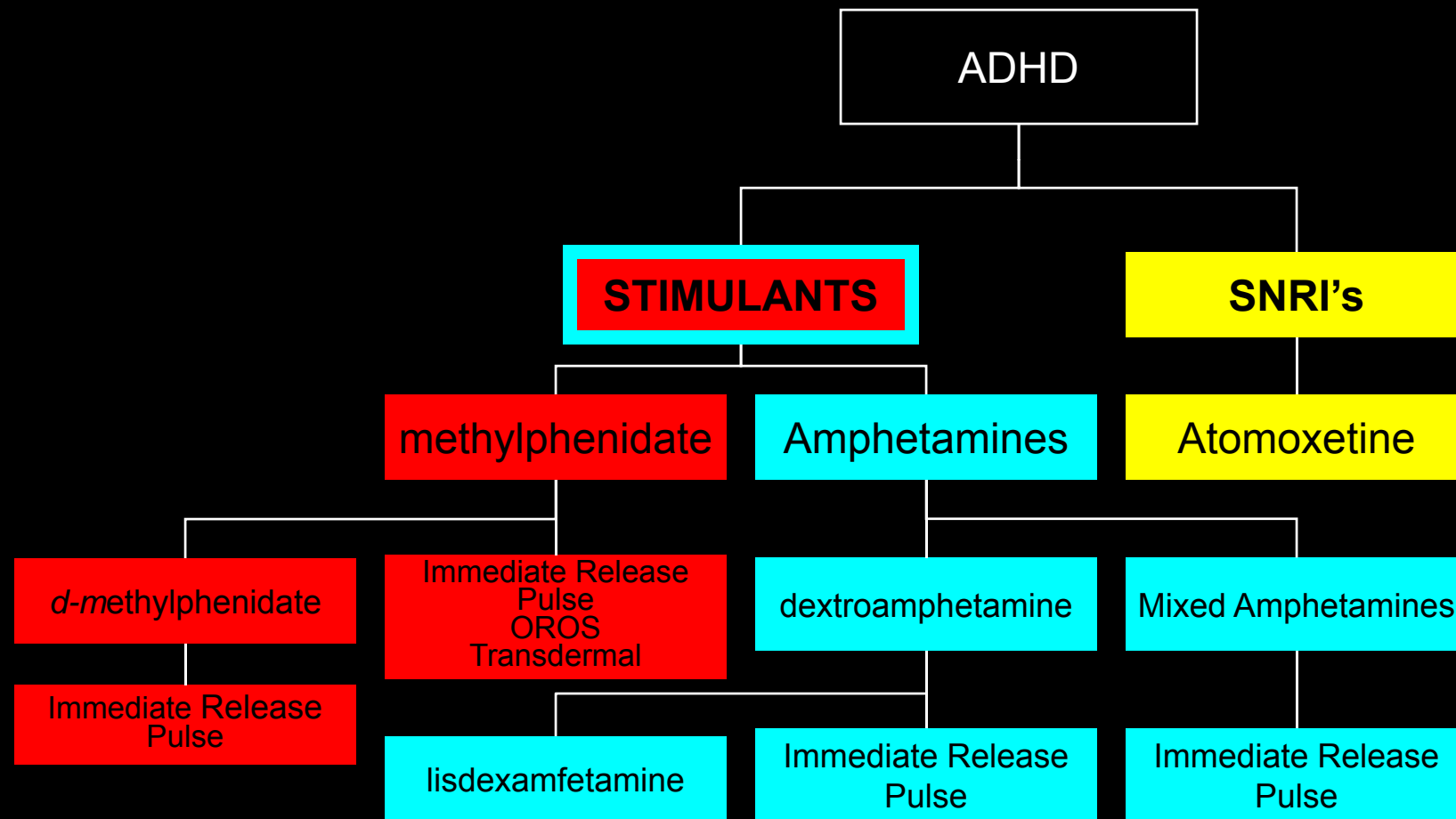
# The Developmental Web



# American Academy of Pediatrics: Guidelines for the Treatment of ADHD

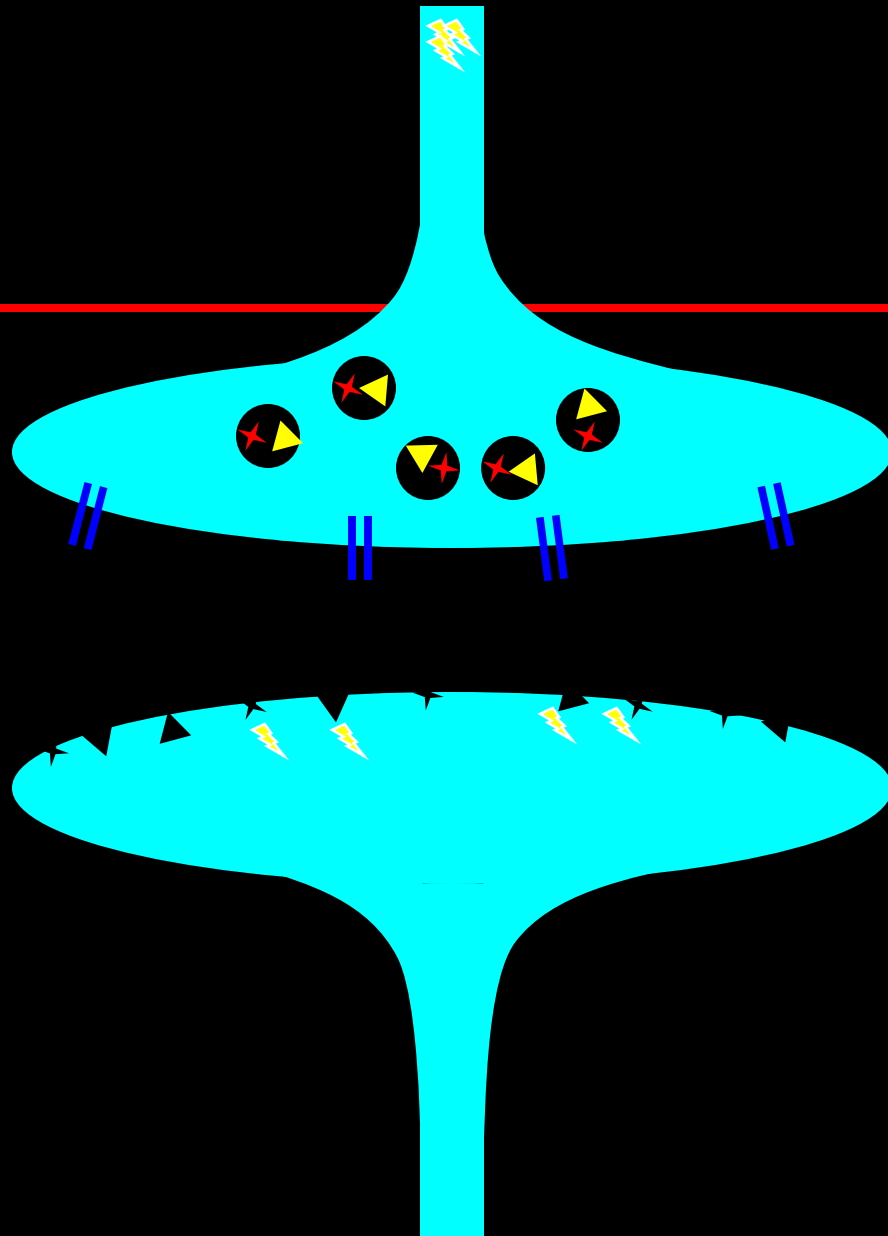
- Establish a treatment program that recognizes ADHD as a chronic condition
- Specify appropriate target outcomes to guide management
- Prescribe stimulant medication and/or behavior therapy to improve target outcomes in children with ADHD
- ***If the treatment program has not met target outcomes, evaluate:***
  - Original diagnosis
  - Use of all appropriate treatments
  - Adherence to the treatment plan
  - Presence of coexisting conditions
- Using information from parents, teachers, and the child, follow-up to evaluate target outcomes and adverse effects

# Types of Medications Used In Managing ADHD

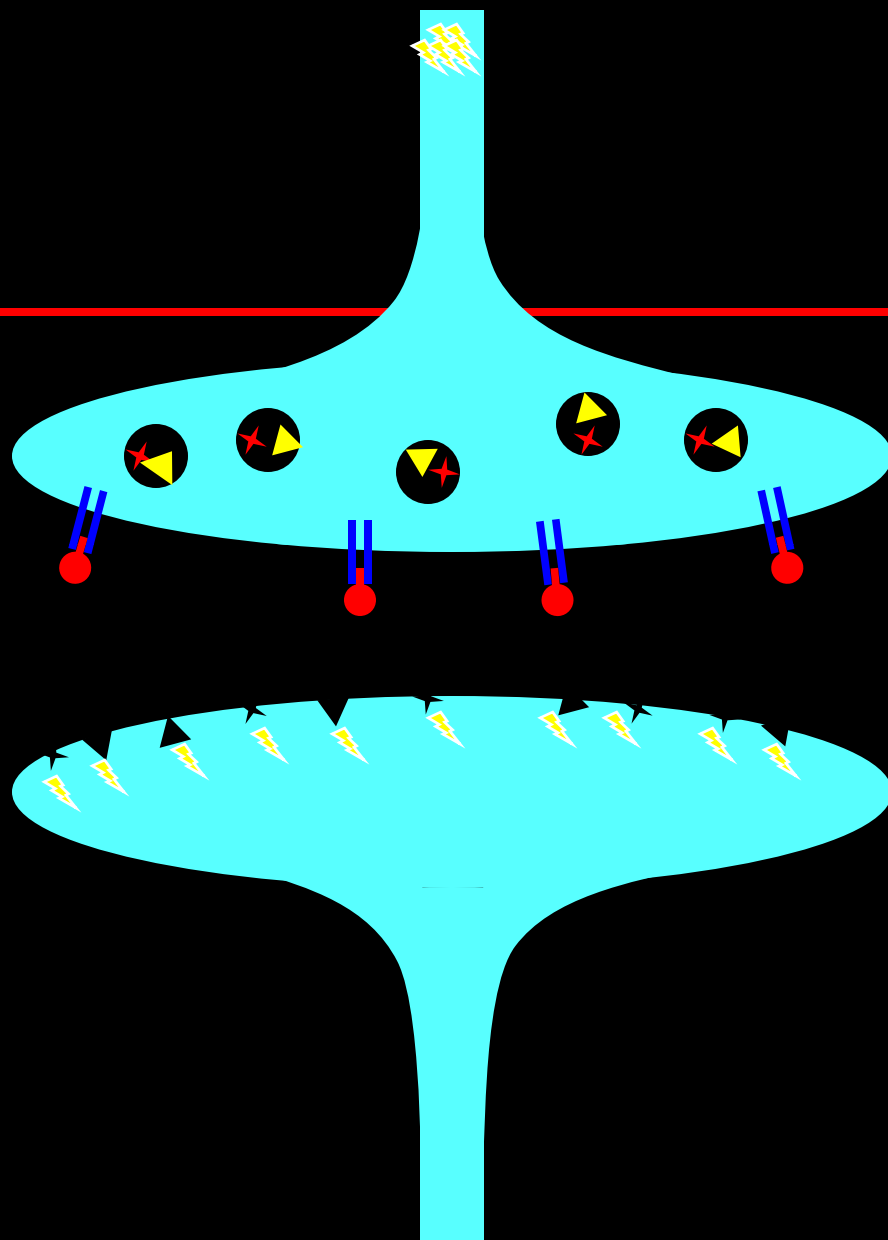




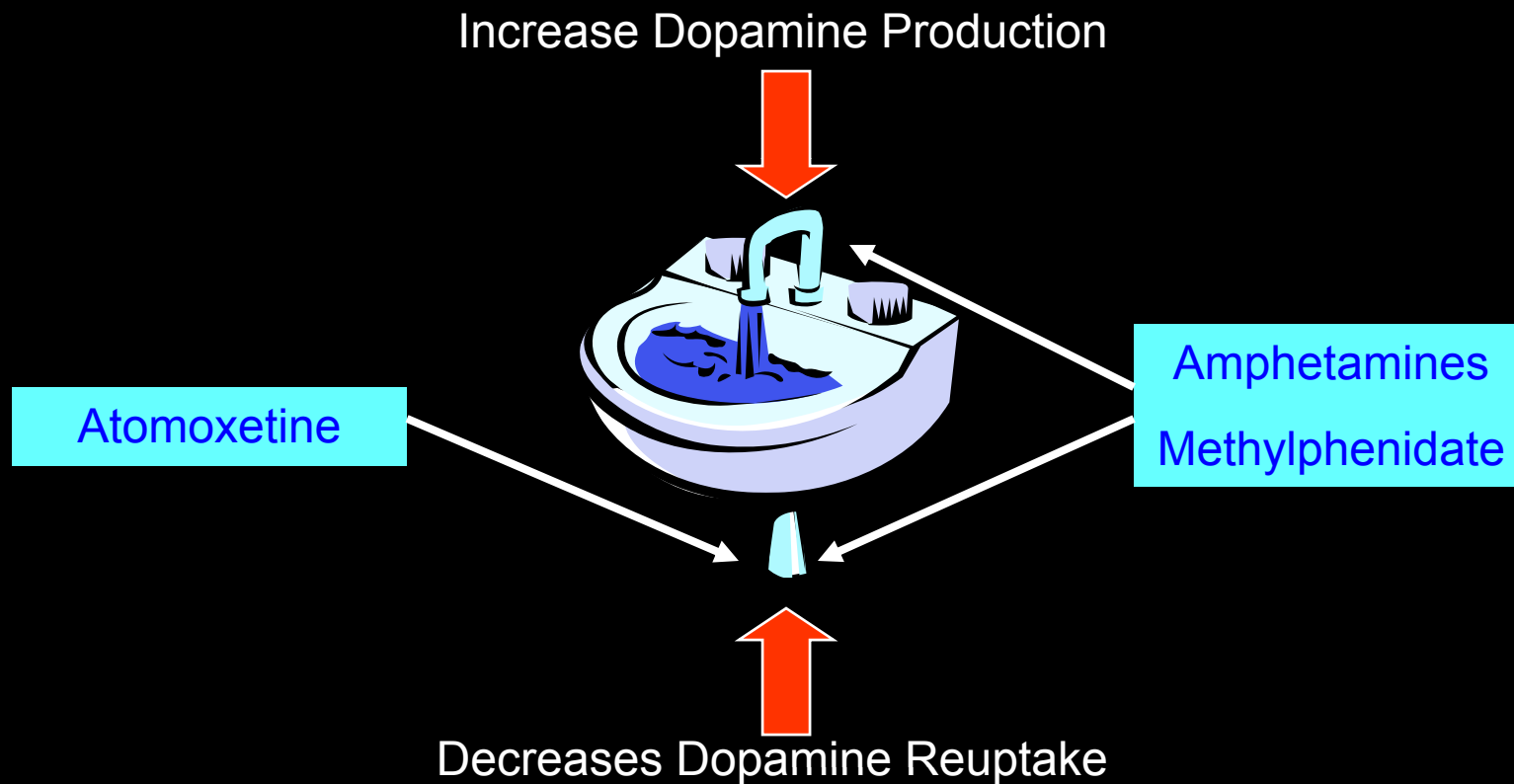
- ▲ Dopamine
- + Norepinephrine
- || Reuptake pumps
- Medication
- ⌋ Receptors



- ▲ Dopamine
- ✦ Norepinephrine
- || Reuptake pumps
- Medication
- ⌋ Receptors



# Proposed Effect of Stimulants



# Medications: Clinical Impact

---

- Increase control of attention
- Increase impulse control
- Decrease activity
- Decrease disruptive behavior
- Improve handwriting (in 50%)

# Medications: Clinical Impact

---

- Academic
- Behavior
- Socialization
- Increase Production
- Increase Compliance  
Decrease Disruption
- Increase Awareness

# Stimulant Medications

---

- Side Effects
  - Insomnia (50-60%)
  - Anorexia (50-60%)
  - Irritability (30%)
  - Headache
  - Stomachache
  - Nausea
  - Tics

# Atomoxetine: Side Effects

---

- Anorexia
- Dizziness - Sleepiness
- Dyspepsia
- Dermatitis
- Constipation
- Mood Swings
- *Transient elevation of liver enzymes*
- *Increased suicidality*

# Medications: Duration of Action

---

- Short Acting: 4 hours
- Intermediate Acting: 6 – 8 hours
- Long Acting: 8 – 12 hours  
24 hours

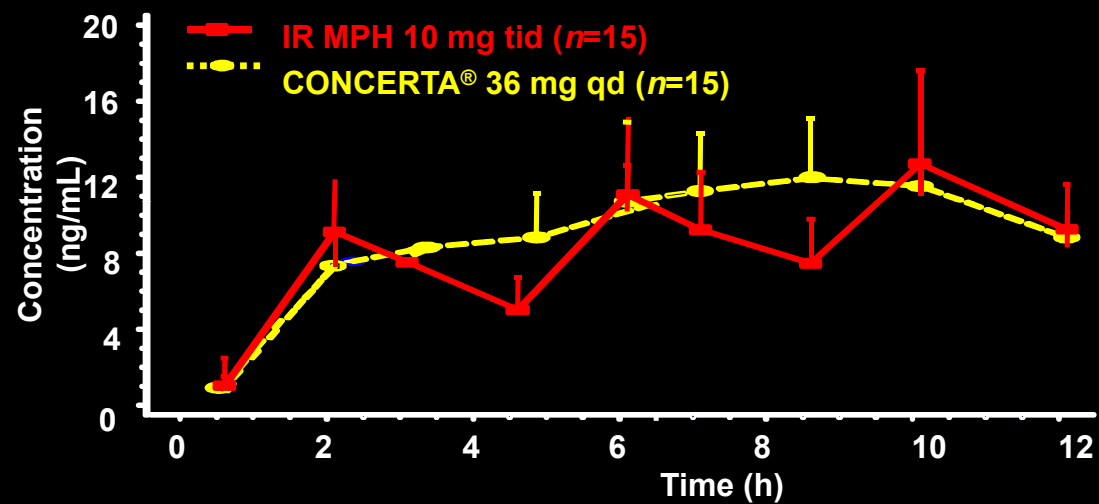


# Medications

---

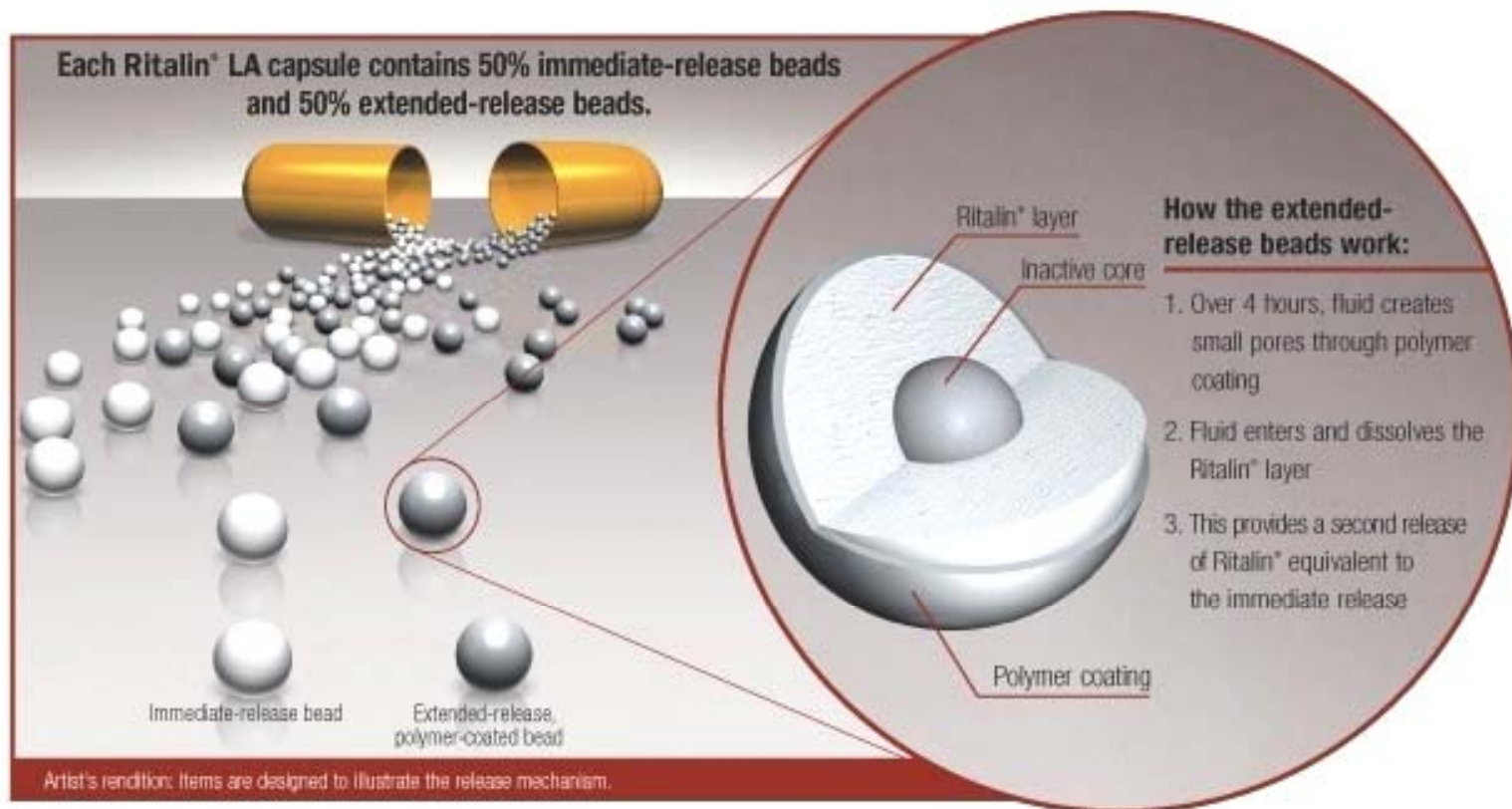
- Short-Acting
  - Ritalin, Dexedrine, DextroStat, Focalin Methylin (Tablet, Chewable & Liquid)
- Intermediate-Acting
  - Ritalin SR, Metadate ER, Adderall, Ritalin LA, Metadate-CD, Methylin ER, Focalin XR
- Long-Acting
  - Dexedrine Spansules, Cylert, Adderall-XR, Concerta, Daytrana, Vyvanse
- 24 hours
  - Strattera

# MPH OROS (Concerta<sup>®</sup>)



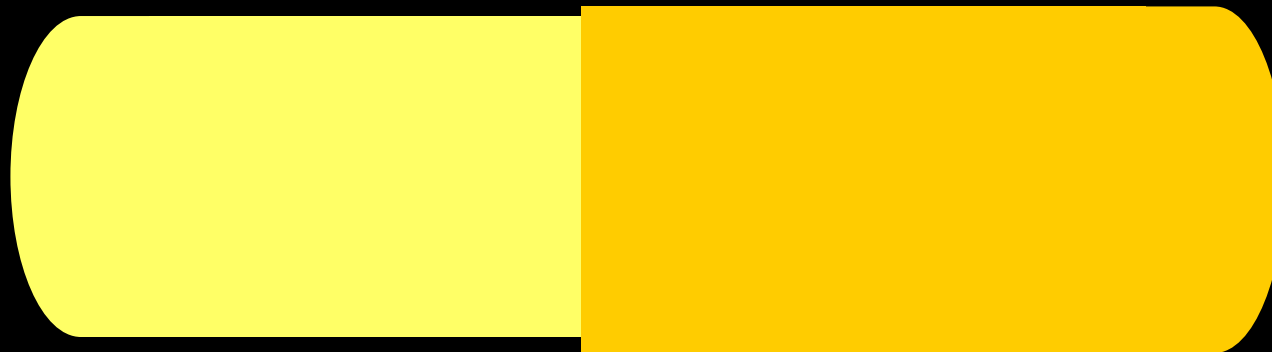
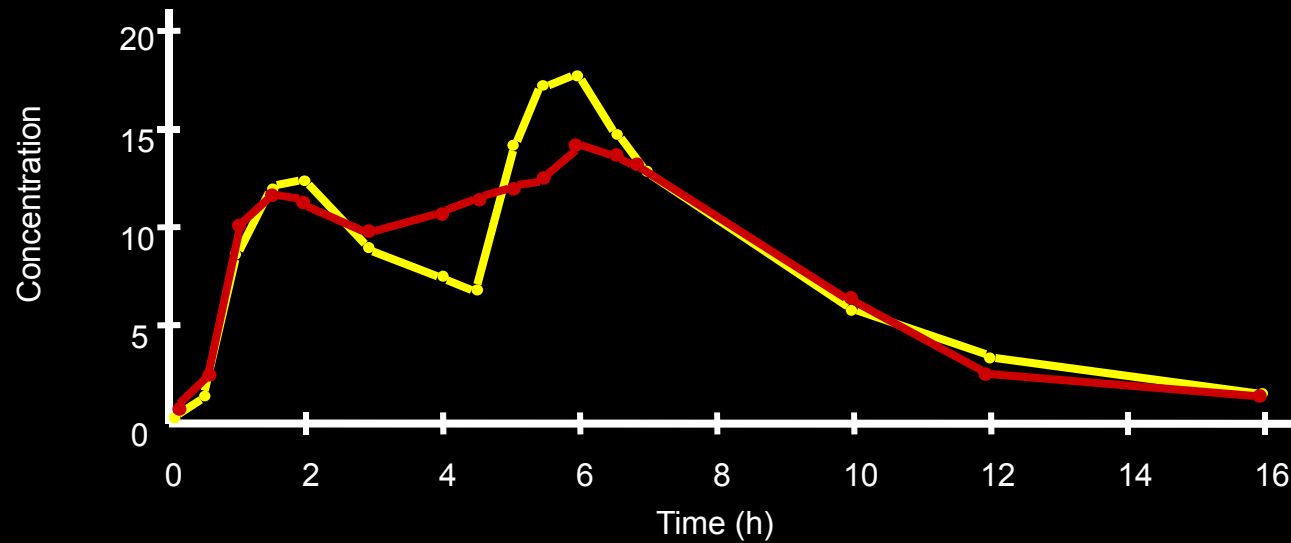
Outer Coat of Medicine

# MPH SODAS™ (Ritalin® LA) Pulse Release



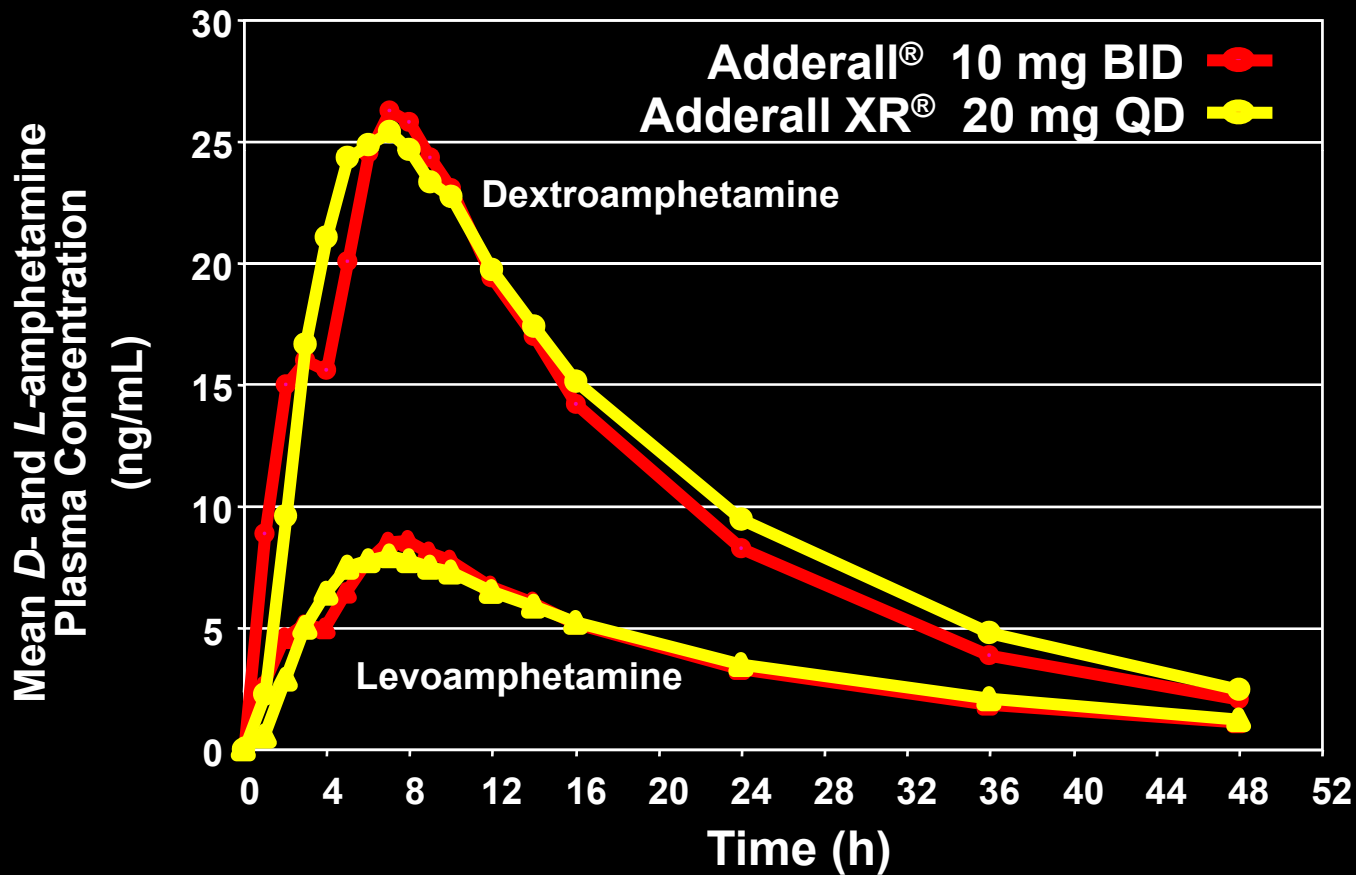
\*Spheroidal Oral Drug Absorption System.

# Pulse Delivery System (SODAS, Difucaps)



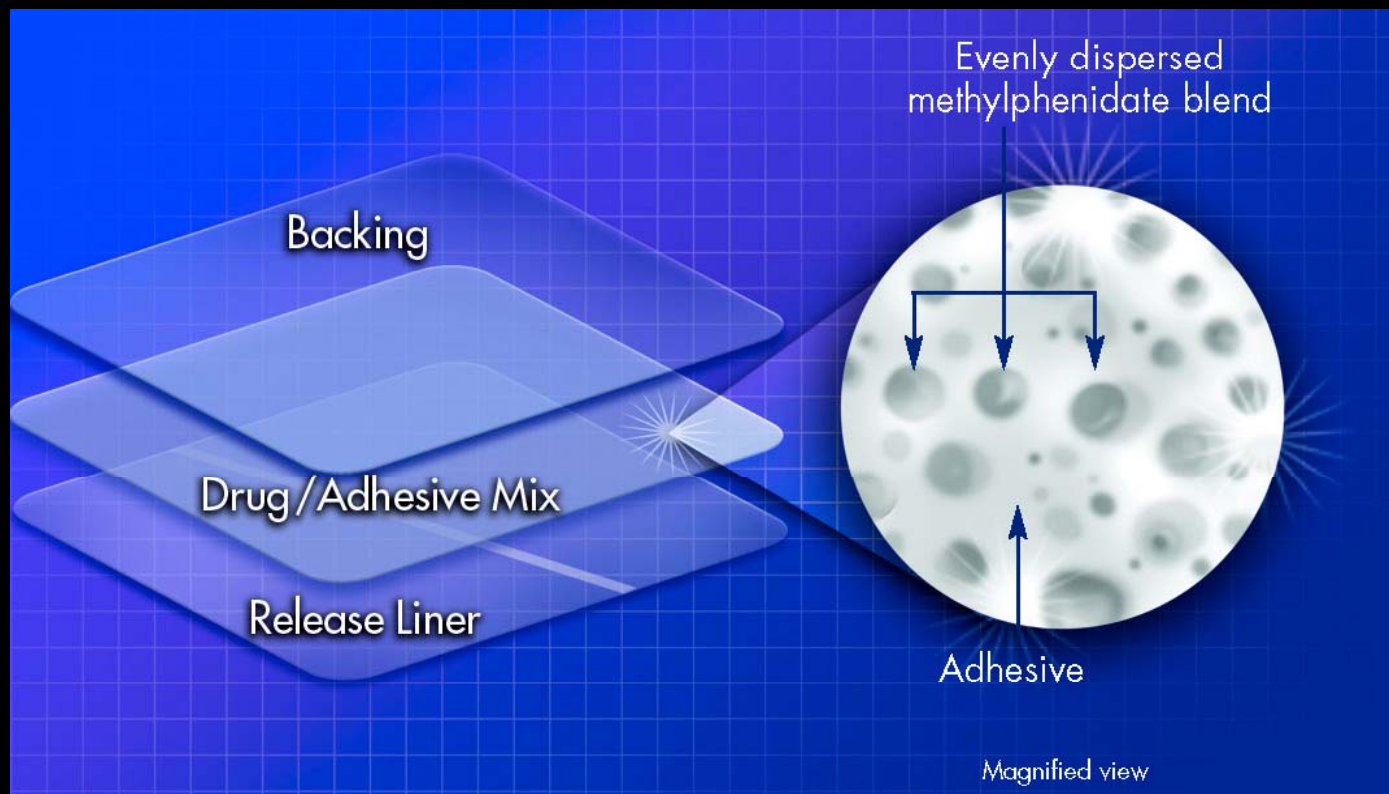
# Mixed Amphetamine Salts (Adderall XR<sup>®</sup>) Formulation Study

Bioequivalence of Adderall XR<sup>®</sup> 20 mg QD to Adderall<sup>®</sup> 10 mg BID



# Daytrana DOT Matrix™ Transdermal Technology

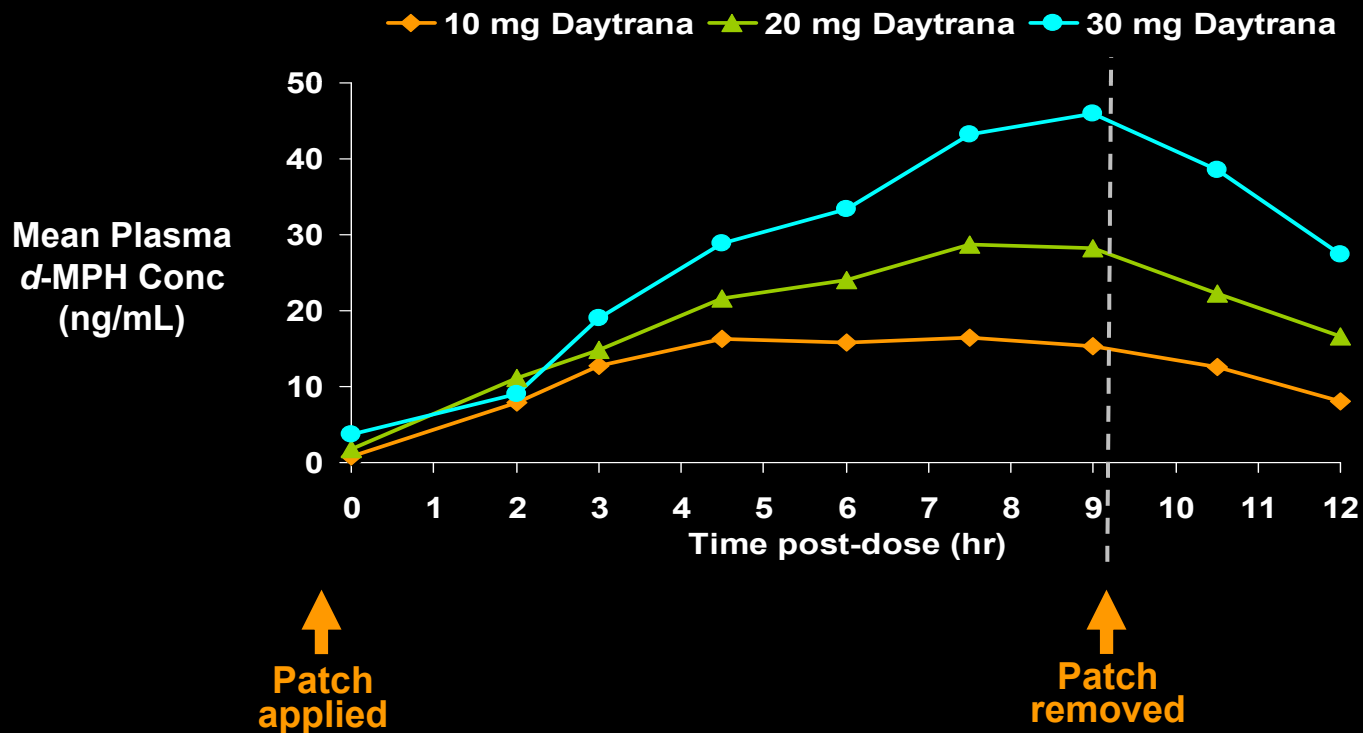
- Methylphenidate is mixed with adhesive



DOT Matrix is a trademark of Noven Pharmaceuticals, Inc.

# Pharmacokinetics with Daytrana

## Mean Plasma Concentration of *d*-methylphenidate



Lower limit of quantification 0.25 ng/mL.

Pierce et al. Poster presented at the AACAP Annual Meeting. Toronto. October 20, 2005.

# Application and Removal/Disposal



- Holding the patch down, the rest of the liner should be removed slowly and the exposed half should be pressed against the skin
- The patch should be pressed down with the palm of the hand for 30 seconds
- Upon removal, the patch should be folded in half, with sticky sides together, and discarded immediately in toilet or lidded container



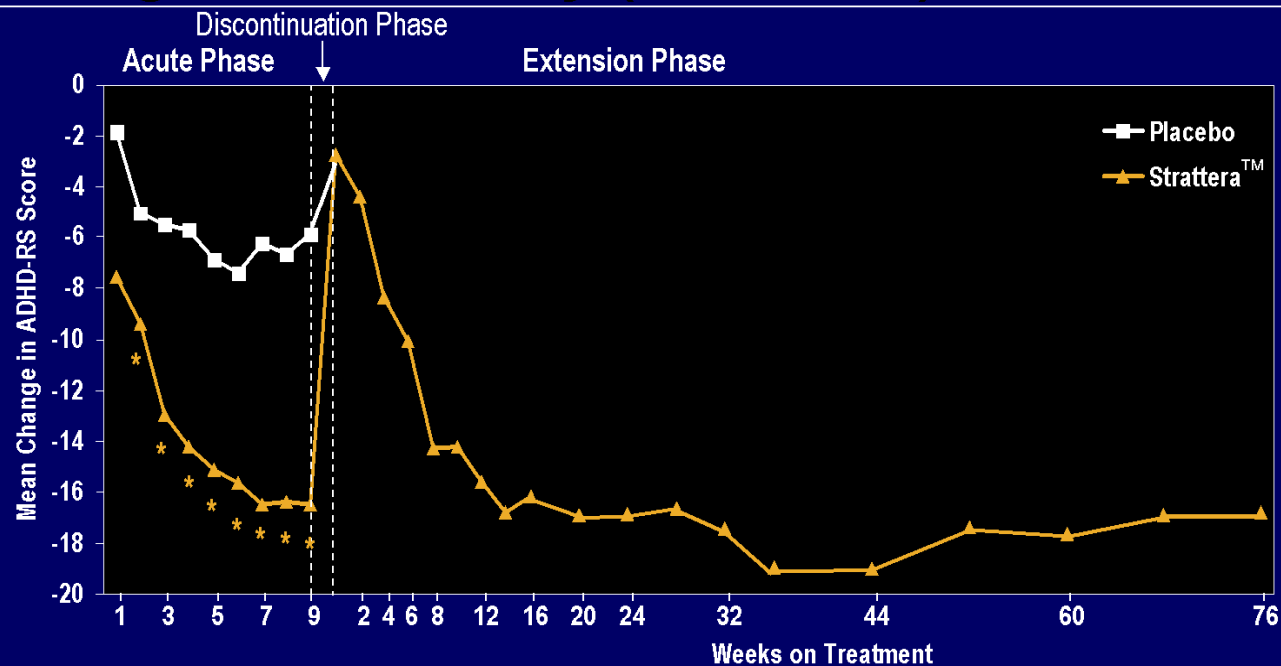
# Vyvanse™

---

- Is a pro-drug
  - Inactive until the body breaks it down
- Combines an amphetamine and an amino acid
  - Dextroamphetamine and lysine
- It lasts 12+ hrs
- Not affected by GI transit time or pH

# Atomoxetine (Strattera<sup>TM</sup>) Efficacy

## Long-Term Efficacy (76 Weeks) (cont.)



\* $p < .01$  for Strattera vs placebo.  
 $p < .001$  for Strattera within-group change.  
Spencer T, et al. Manuscript in preparation.

# Behavioral Management

What to do at Home

# Core Principles for Behavior Management

---

- Immediacy of Consequences
- Frequency of Consequences
- Saliency of Consequences
- Frequent Changes in Rewards
- Act, Don't Yack
- Positives Before Negatives
- Anticipate Problems
- Pick Your Fights - Prioritize
- Expect Variability
- Practice Forgiveness

*It is not your fault...*

But it is your problem