

# **Benefits Of Cognitive Training After Brain Injury**





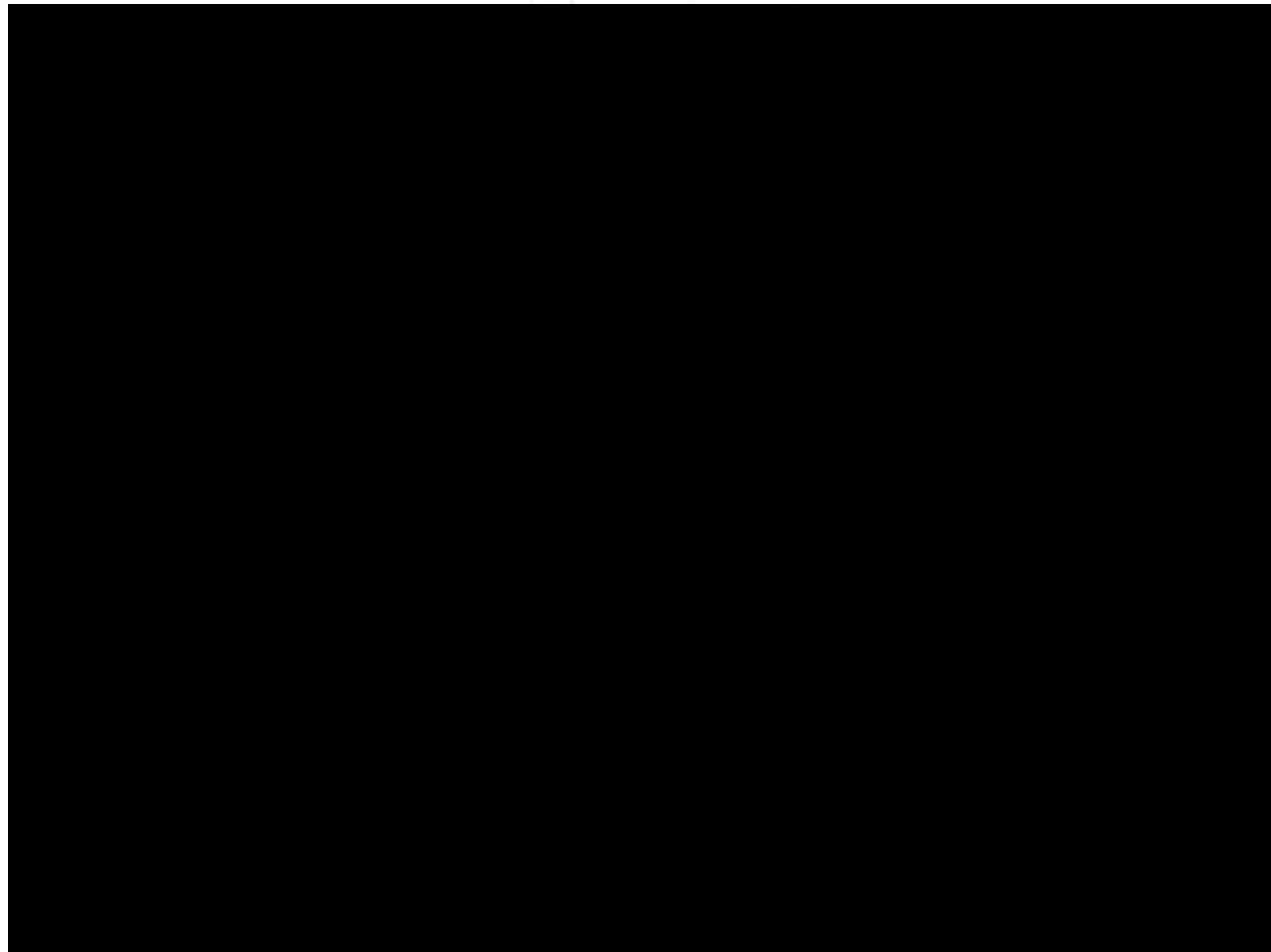
**Tanya Mitchell**

*Vice President of Research and  
Development*

# LearningRx 2011 Student of the Year



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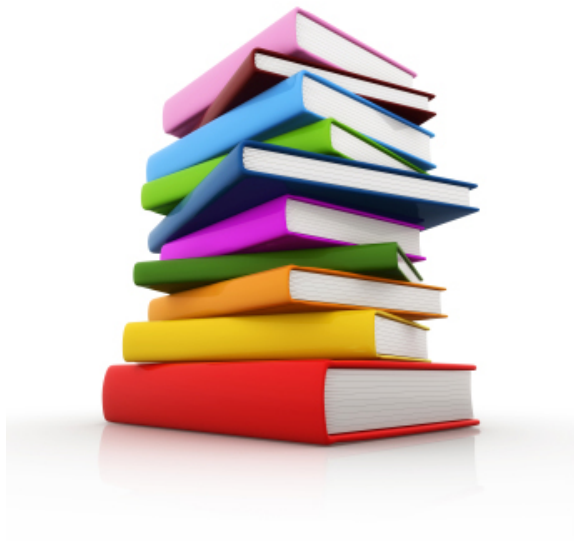
# **Today's Workshop**

- **What are cognitive skills?**
- **Demonstration Of Major Cognitive Skills Affected By Brain Injury**
- **Effective Training Methodology**
- **Training Results With Brain Injured Students**



# Two Parts to Learning

Knowledge



Data Storage

Intelligence



Processing Abilities



## Other Names for Intelligence

- Cognitive Skills
- Processing Skills
- Learning Tools or Skills
- Mental Skills & Abilities



# Two Parts to Learning

## Knowledge

- Accumulated Facts, Knowledge
- “Database”
- Measured by Achievement Tests, Grades

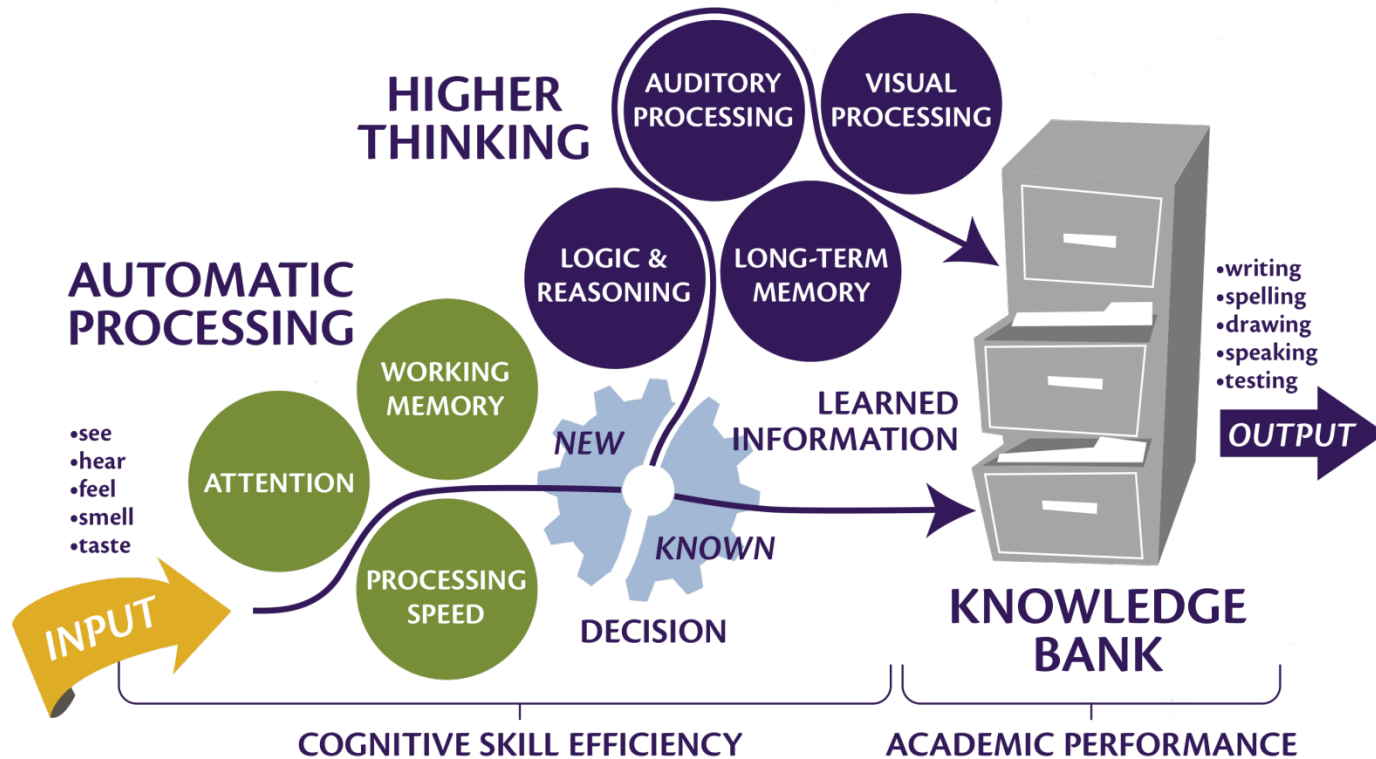
## Intelligence

- Automatic “Input” Processing
- Higher Thinking
- Measured by IQ, SAT, ACT, College Entrance Tests



# How We Learn

## Model of Processing New & Known Information





# Demonstration of Major Cognitive Skills

- Attention
- Processing Speed
- Working Memory
- Long-Term Memory
- Visual Processing
- Reasoning
- Auditory Processing



## Attention

black red green yellow blue  
blue green yellow black black  
red black red black green red  
green yellow blue black black

# Demonstration of Major Cognitive Skills

- Attention
- Processing Speed
- Working Memory
- Long-Term Memory
- Visual Processing
- Reasoning
- Auditory Processing

## Number Columns

4

2

2

2

1

6

5

0

8

6

3

4

7

8

5

1

9

7

8

4

9

9

7

0

3

5

1

0

3

3



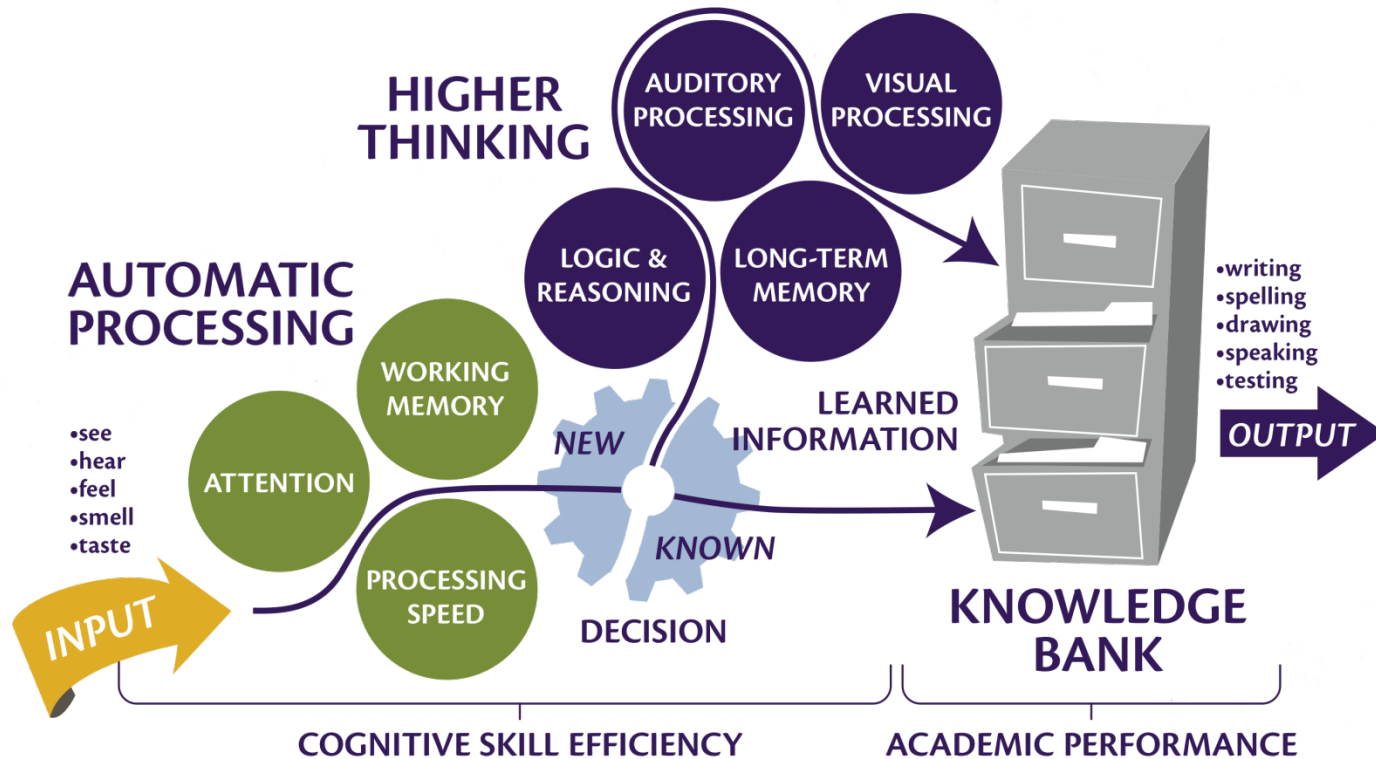
# Demonstration of Executive Function

- Attention
- Processing Speed
- Working Memory
- Long-Term Memory
- Visual Processing
- Reasoning
- Auditory Processing

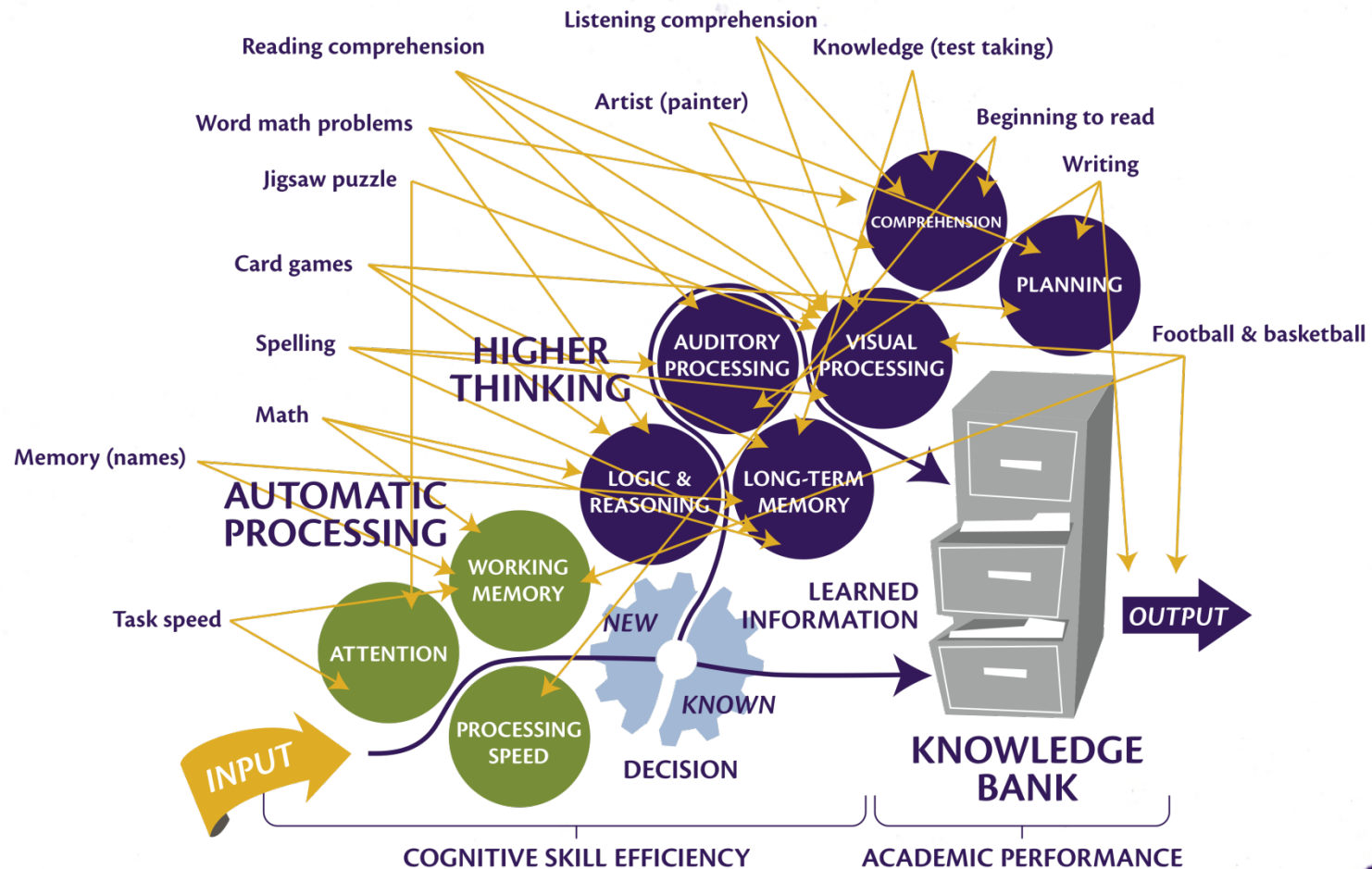
# Mental Tic Tac Toe

1	2	3
4	5	6
7	8	9

# Cognitive Skills and Performance



# Underlying Skills and Activities

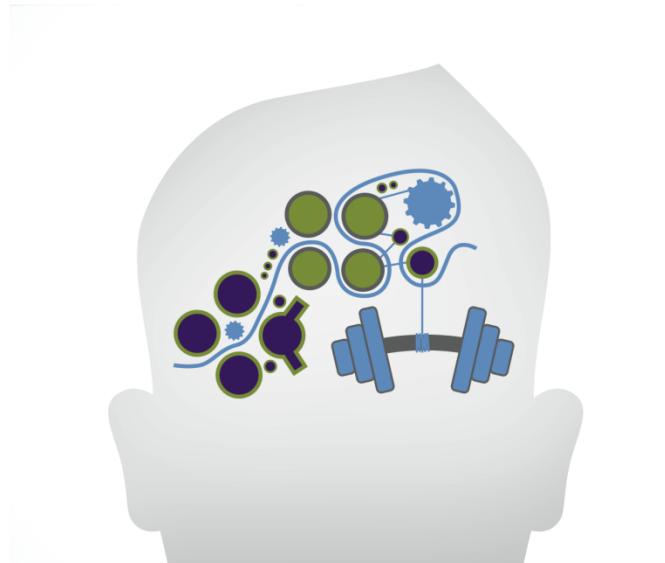




# Effective Training Methodology







Brain Training



One-on-One



Sequencing



Feedback



Intensity





Targeting

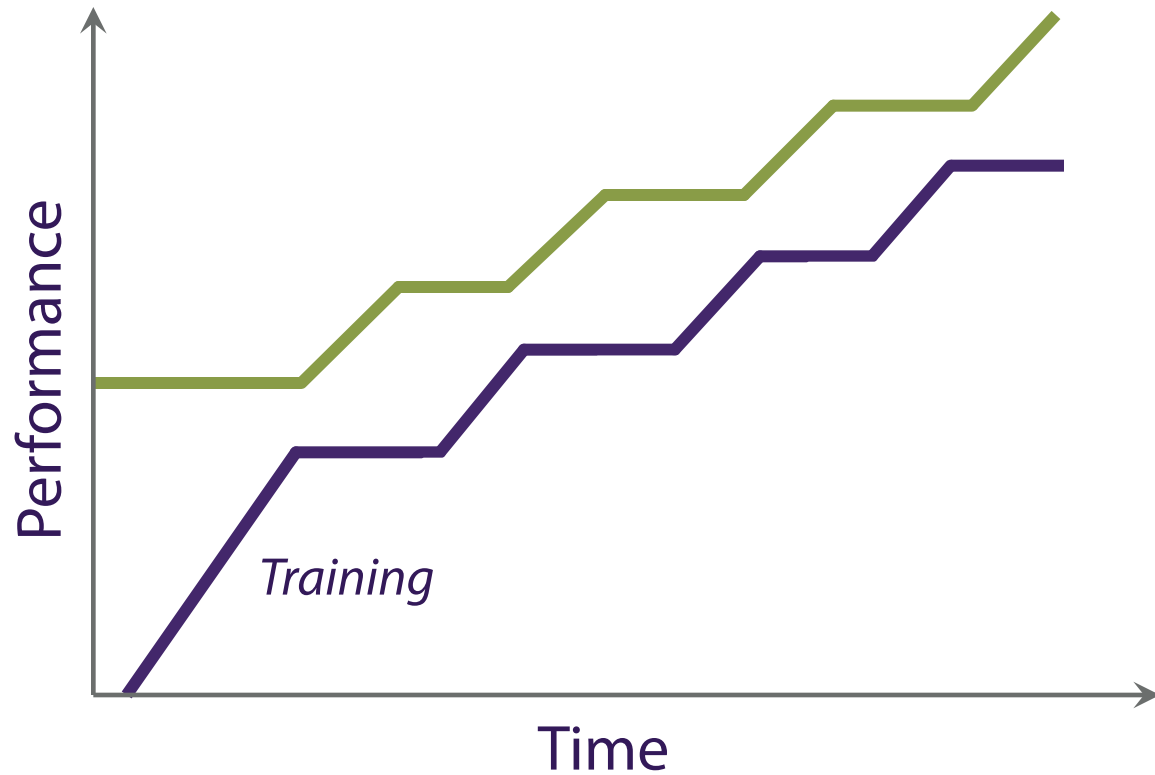


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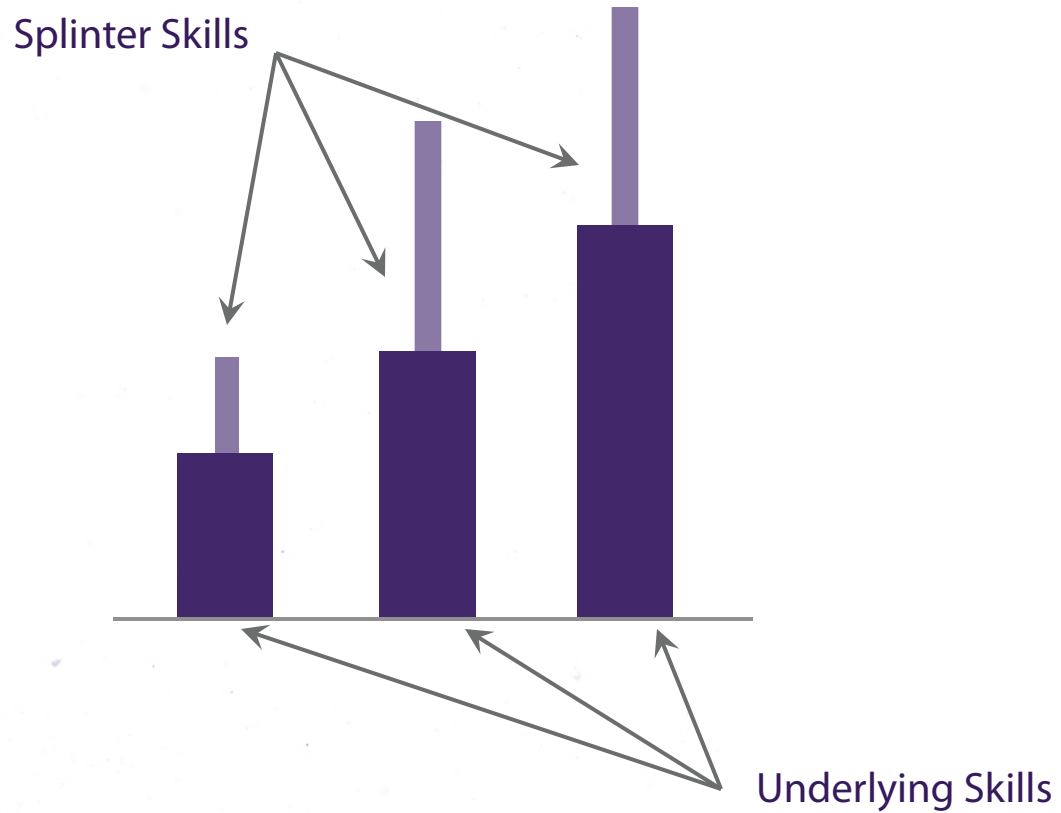


Non-Academic

# How Training Works



# How Training Works

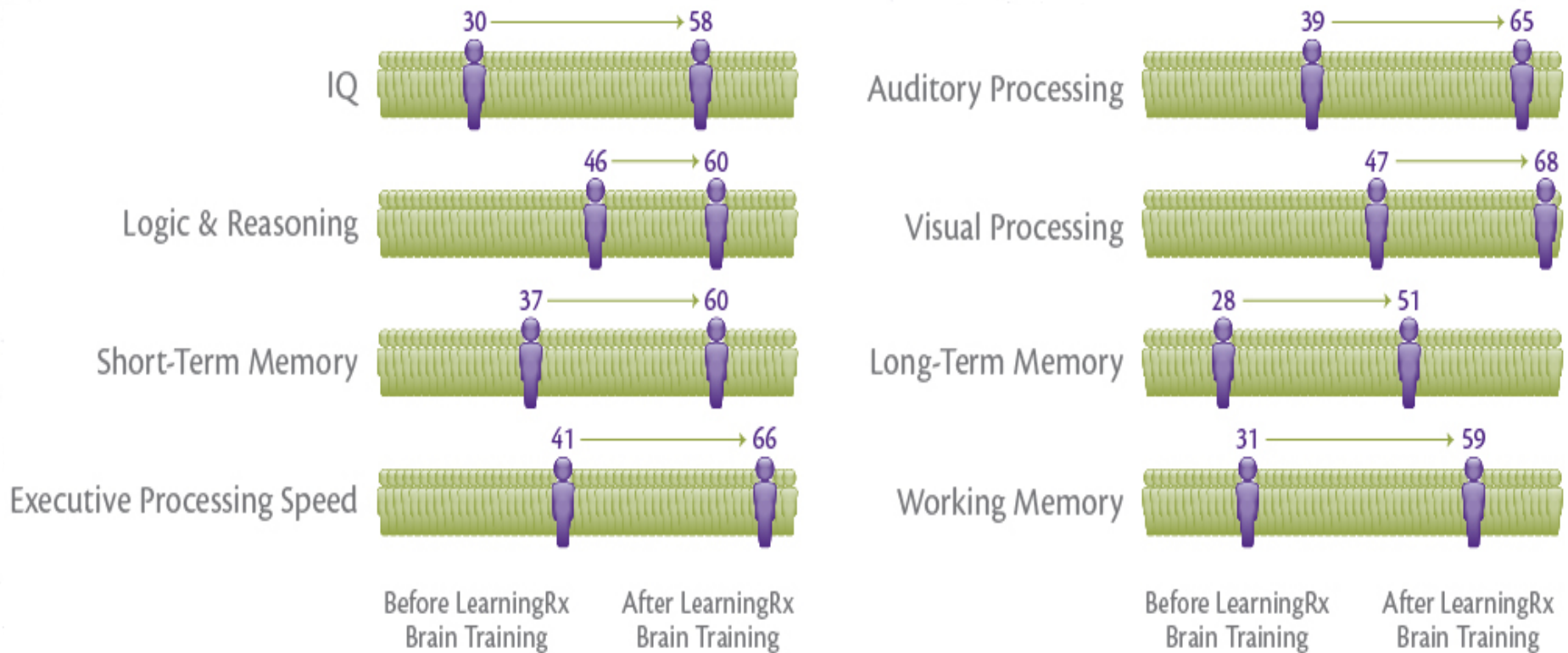




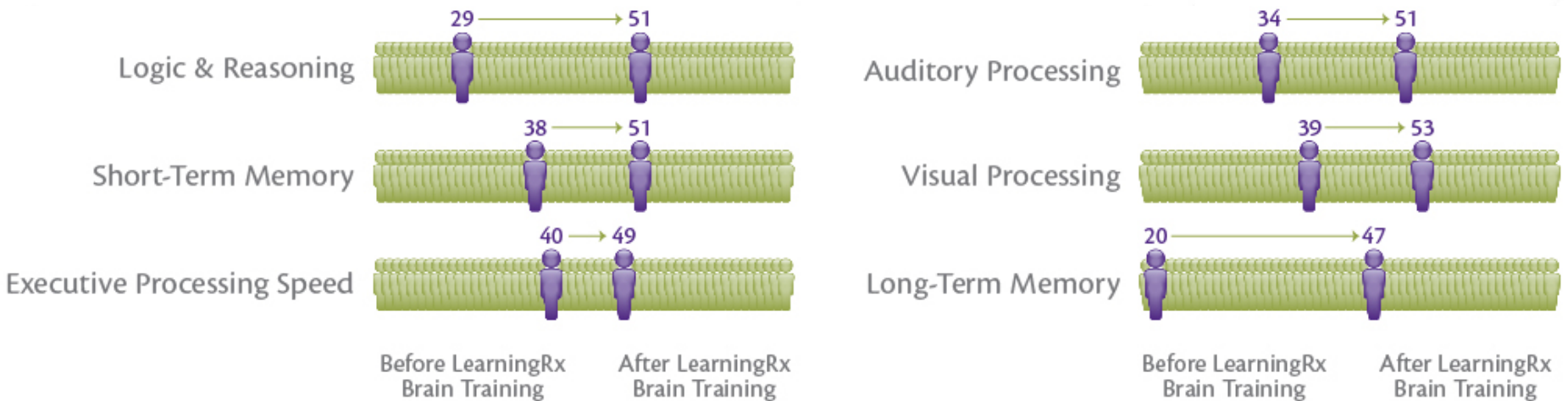
# RESULTS WITH BRAIN TRAINING



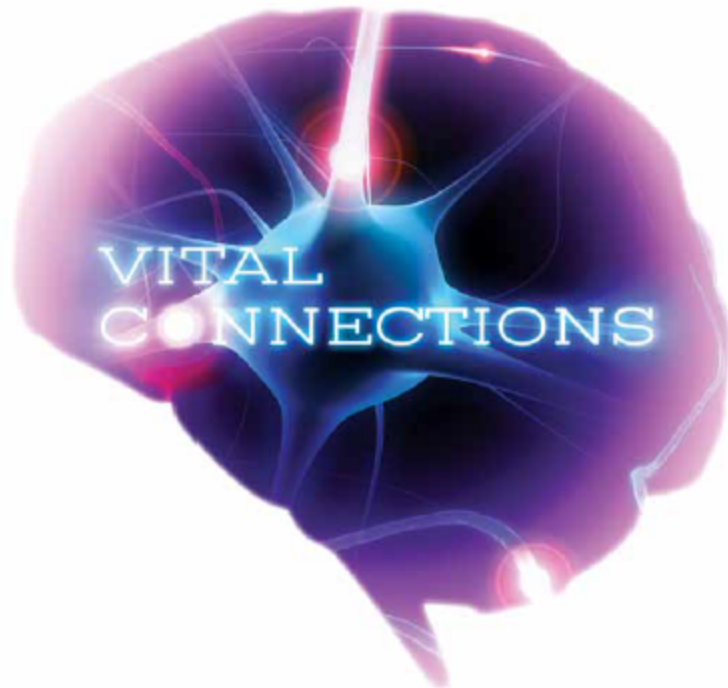
# TBI Pre/Post Percentile – Age 20+



# TBI Pre/Post Percentile – Age <20



*A tragic accident.  
A traumatic brain injury.  
A lengthy coma.*



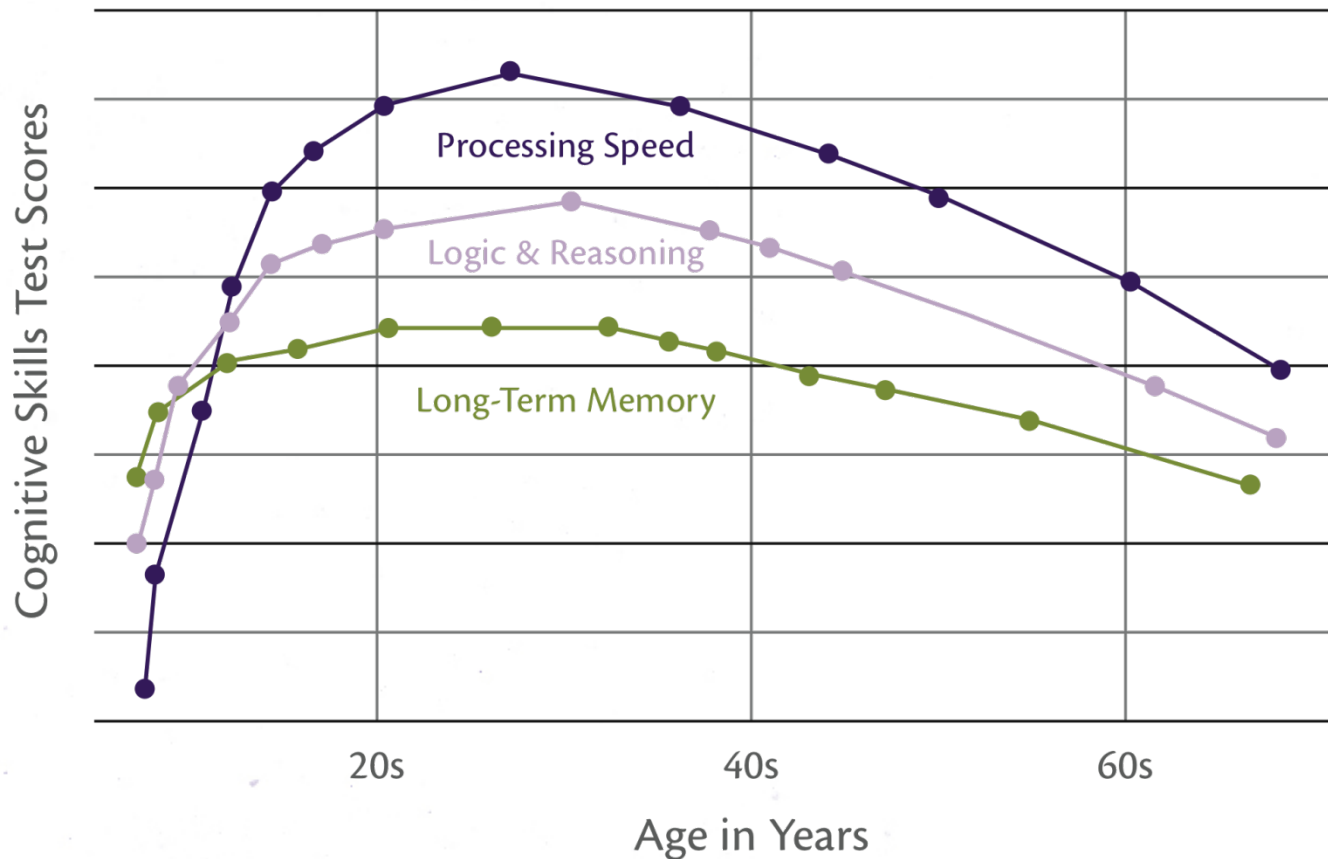
## VITAL CONNECTIONS

When a thirty-three-year-old father is left with the brain function of a child, what will it take to turn him back into a man and a dad?

**MICHAEL J. KLASSEN  
AND KAREN LINAMEN**



# Mental Skills Change with Age

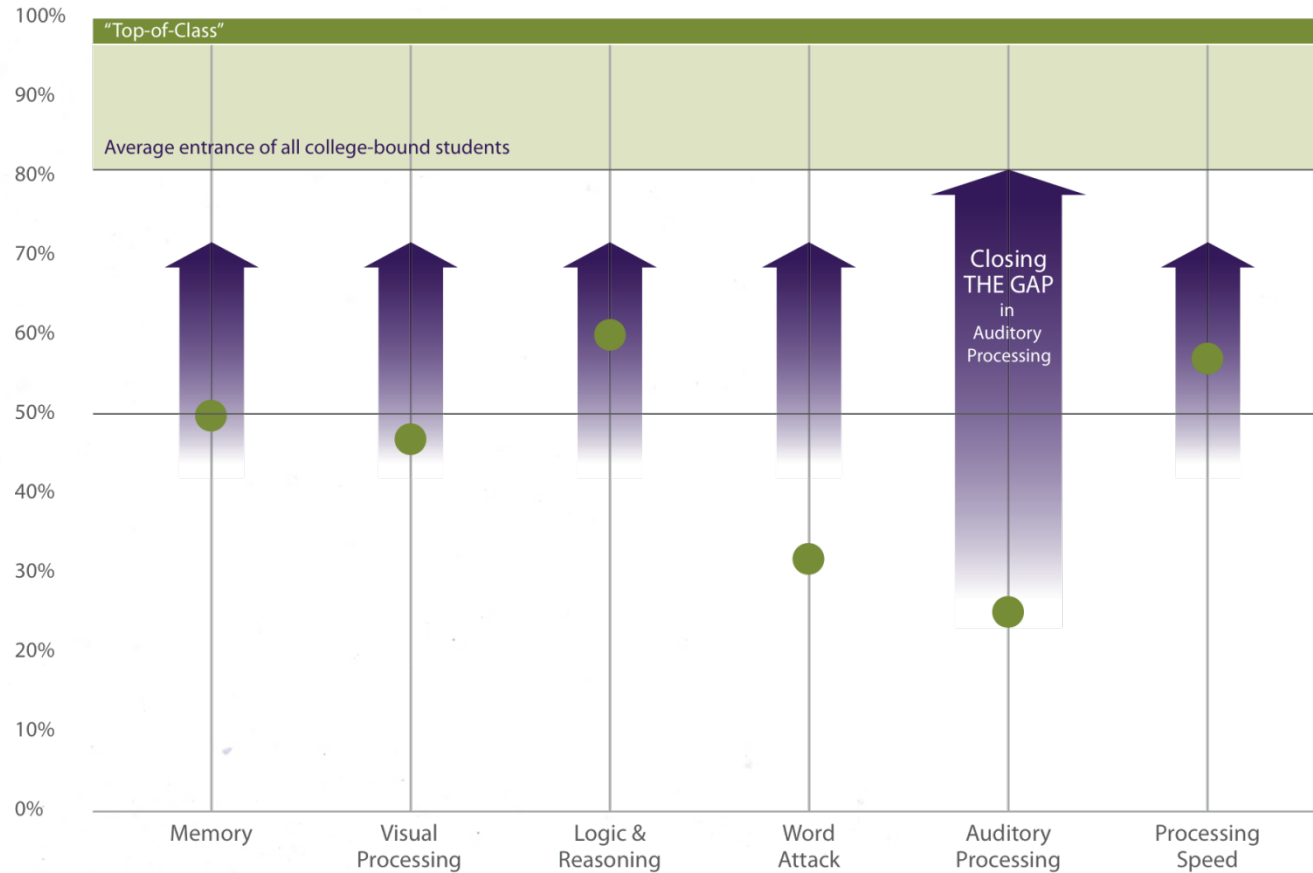


Typical scores drawn from Woodcock Johnson III Examiner's and Technical Manual, 2001

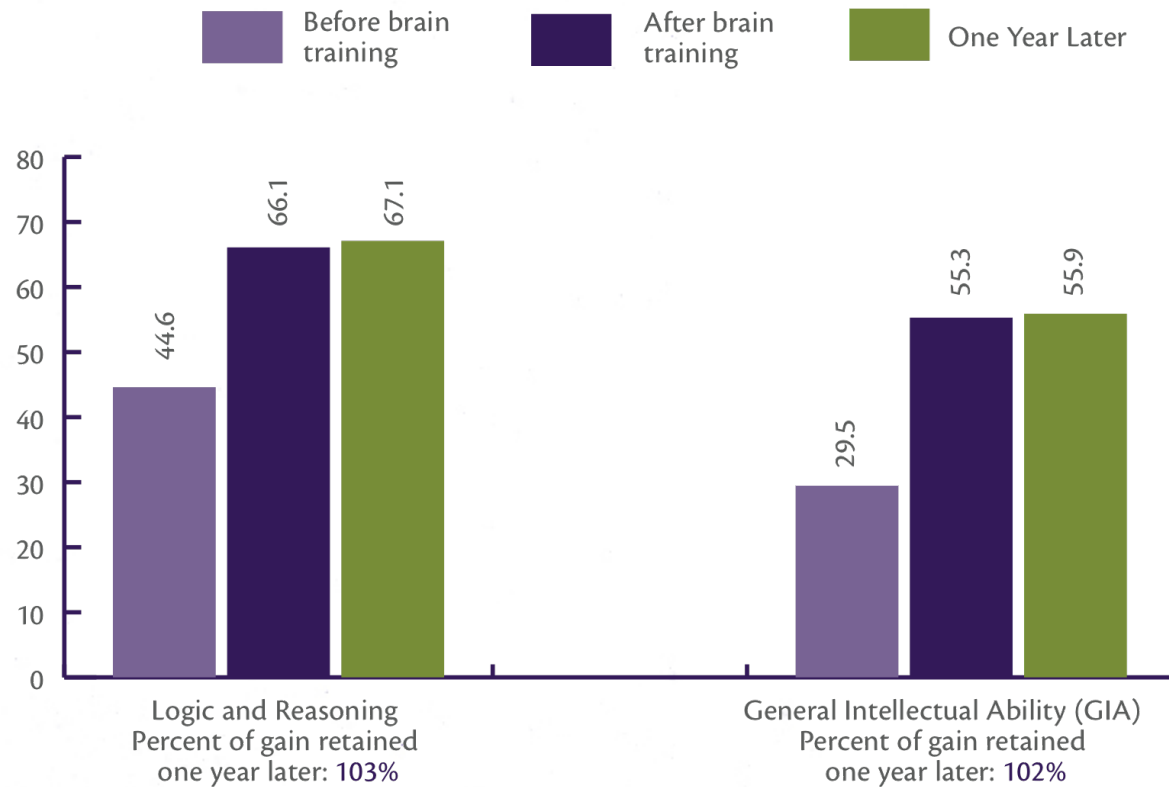


# The Gap

● Scores by Percentile (where your child rates out of 100)



# One-Year Retention of Gains Based on Percentile Scores



# Classifications of Intelligence Quotients

% of Pop	IQ Range	IQ	Percentile	Description	SD
2.20%	130+	135	99	Very superior	2 (115 to 130 = 13.5%)
		130	98		
6.70%	120-129	125	95	Superior	
		120	91		
16.10%	110-119	115	84	High average	1 (100 to 115 = 34%)
		110	75		
50%	90-109	105	63	Average	68%
		100	50		
16.10%	80-89	95	37	Low average	1 (100 to 85 = 34%)
		90	25		
6.70%	70-79	85	16	Borderline	
		80	9		
2.20%	Below 70	75	5	Extremely low	2 (85 to 70 = 13.5%)
		70	2		
		65	1		