

Welcome to the Conference



Jennifer Vargo, Director
Office of Integrated Student Supports

Strategic Plan and Whole Child



Paolo DeMaria
Ohio Superintendent of Public Instruction

USDA Remarks




Vista Fletcher, Midwest Region Director
Special Nutrition Programs, USDA

Child Health and Wellness



Robert Murray, M.D., Professor of Human Nutrition, The Ohio State University



Whole School
Whole Child
Whole
Community

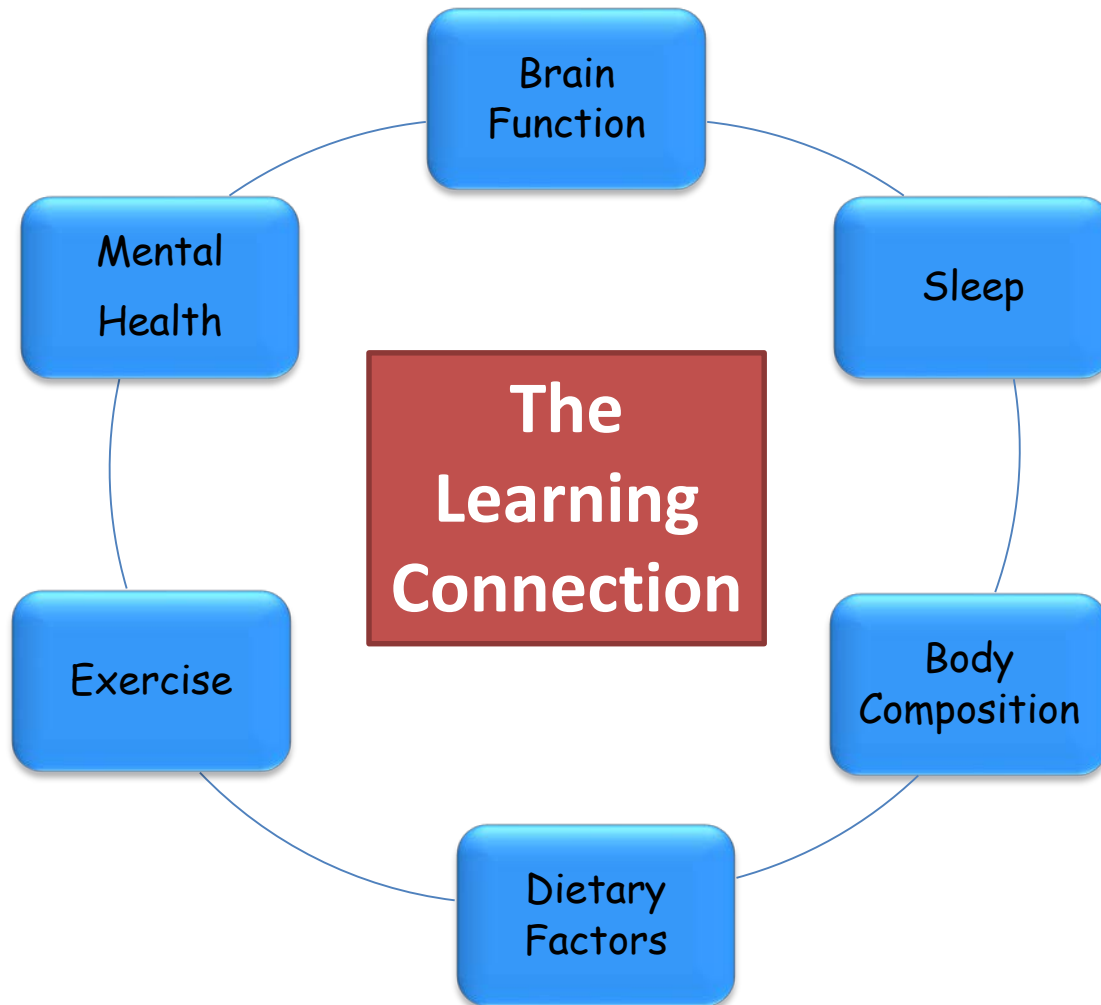
WSCC:
The Child
Health Piece

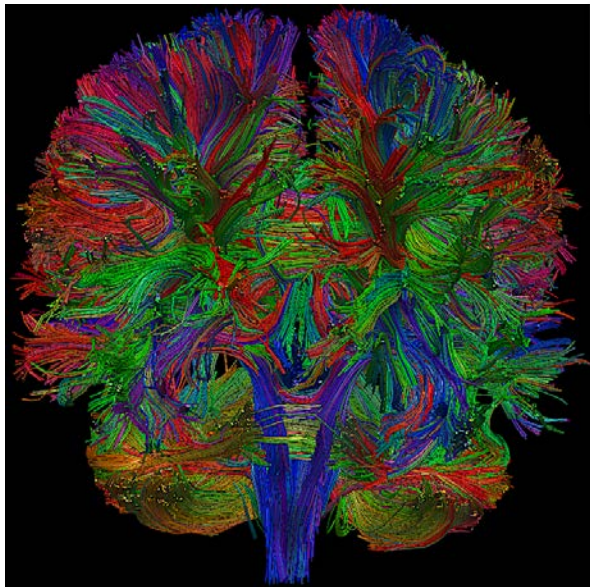


WHOLE SCHOOL, WHOLE COMMUNITY, WHOLE CHILD
A collaborative approach to learning and health

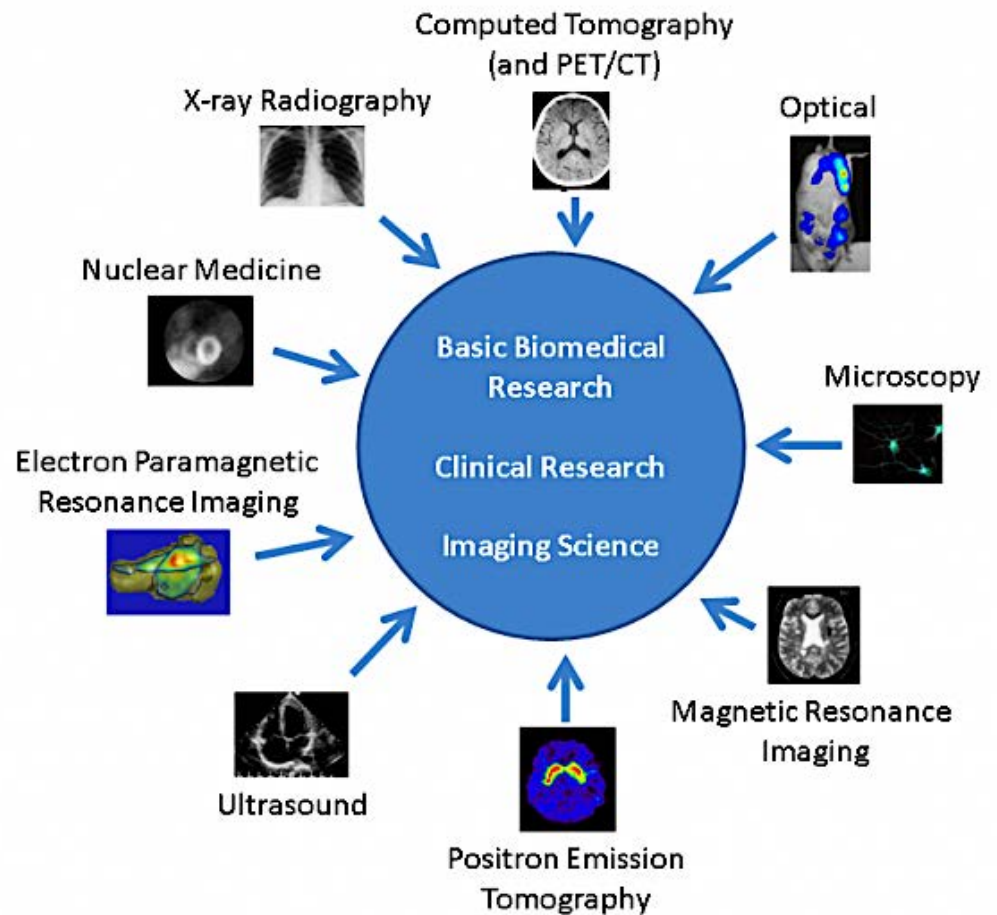


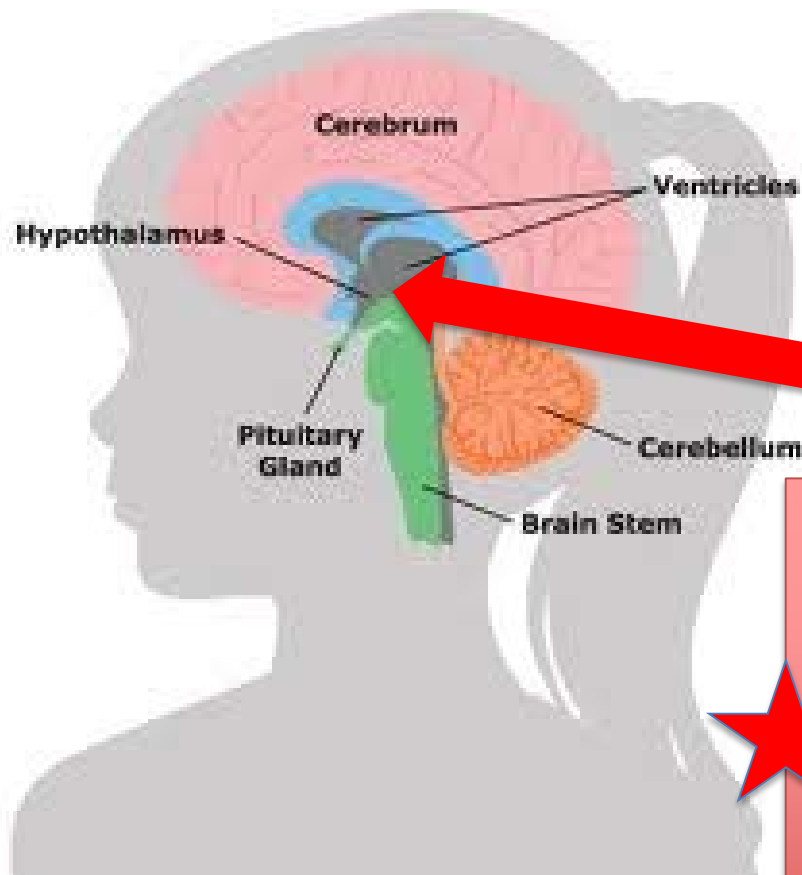
***Together,
We Can Put a Better Student in the Chair***





How We're Learning about Learning

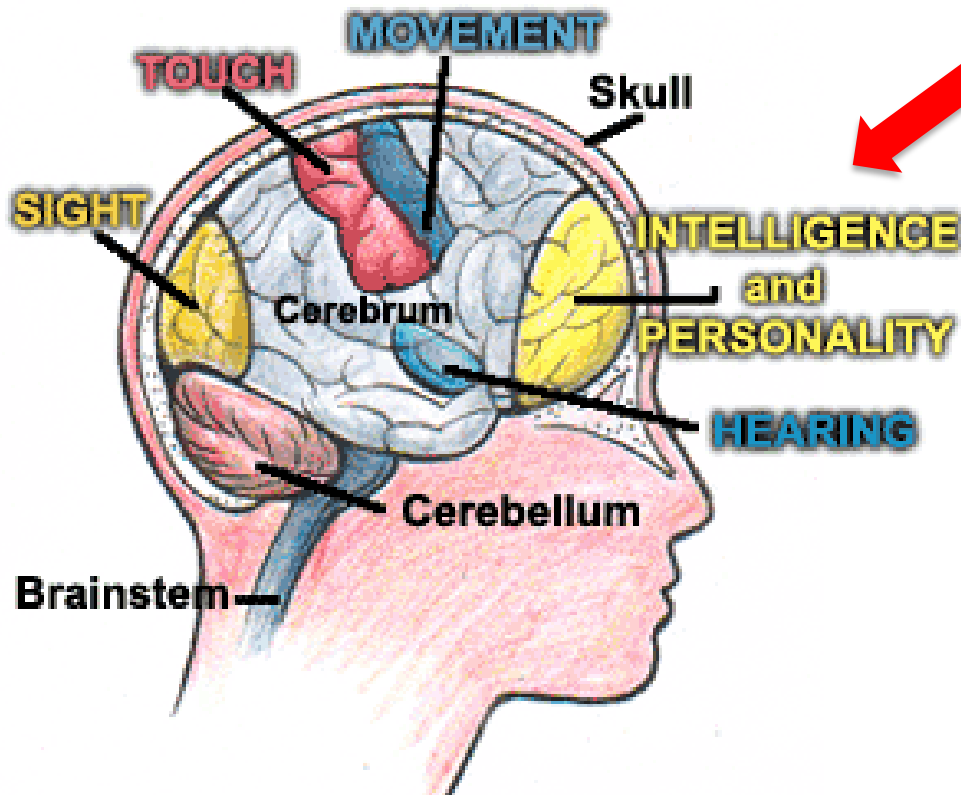




**The Middle
Brain
Develops
First & Furious**

**Emotional Outbursts
Fearful Anxious
Impulsive
Stressed
Inattentive**

The Front Brain

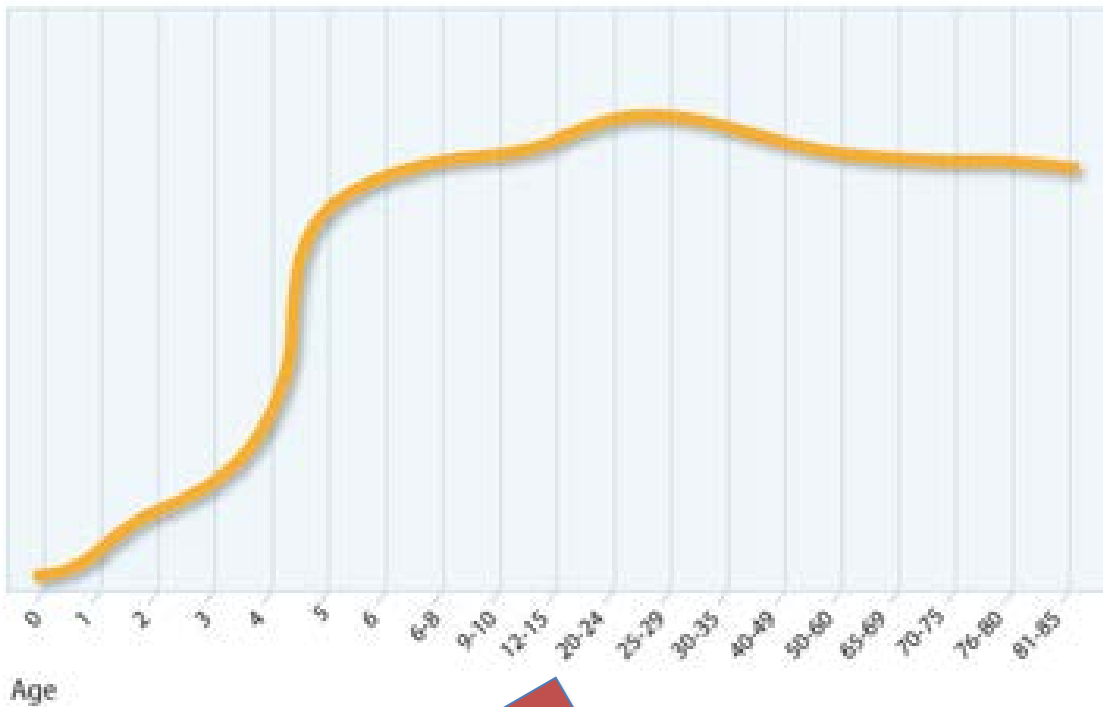


“Executive Functions”

The Frontal Cortex
Develops
Slowly

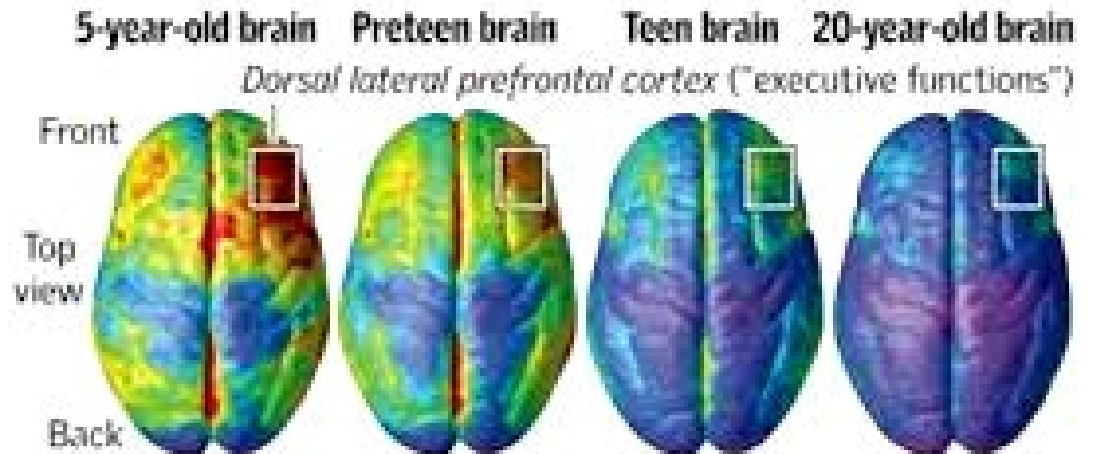
Calm
Calculating
Focused
Plans Ahead
“What if...?”
Multi-tasks
Logical
Organized
Adaptable

Executive Function Skill Proficiency



**Development
of the
Frontal Cortex
is
Completed in the
Mid-20s**

**Active
Maturation**



Year One:

The 5 Senses,
Gross & Fine
Muscles to
Explore

Years 1-3:

Language and motor skills

Higher
Cognitive
Function

Years 2-12:

More abstract
thinking

FIRST YEAR

-8 -6 -4 -2 2 4 6 8 10 1 3 5 7 9 11 13 15 17 19
Birth
Months Years

**Early Childhood Exploration
is the basis of cognition**





NURTURING

NUTRITION

EXPERIENCES

3 Key Factors

Nutrition Builds & Maintains Brain



- **Vit B1** – utilize glucose, modulate cognition, language development, neurotransmitter synthesis
- **Vit B6, B12, choline, tryptophan, tyrosine, phenylalanine, copper, histidine, threonine** – synthesis of neurotransmitters
- **Vit B12** – cognition, language, myelination
- **Vit C** – antioxidant, cognition, memory, myelination
- **Vit D** – prevents neurodegenerative disease
- **Vit E** – cell membrane integrity, antioxidant, protection of DHA
- **Iron** – oxygenation, synthesis of myelin & neurotransmitters, brain development, IQ
- **Magnesium** – energy and ion regulation, neural plasticity
- **Zinc** – neuromotor transmission, cell proliferation, taste
- **Iodine** – (via thyroid) cellular energy metabolism
- **Omega 3 PUFA (DHA)** – cognition, visual development
- **Lutein** – macular protection
- **Flavonoids** – protect & enhance neurons, anti-inflammatory, cognition

The Dietary Guidelines for Americans

A Quality Dietary Pattern = Health



- Heart Disease
- Stroke
- Diabetes
- Obesity
- Hypertension
- Metabolic diseases
- Osteoporosis
- Cancers
- Alzheimer's
- Mental Health

School Meals (USDA, 2018)

School Lunch (NSLP)

- 30 million/ day
- \$13.8 billion investment
- 4.9 billion lunches/ year
 - 20.2 million free
 - 1.8 million reduced price (student pays \$0.40)
 - 7.7 million full price

School Breakfast (SBP)

- 14.6 million/ day
- \$4.4 billion investment
- 2.4 billion breakfasts/ year
 - 11.7 million free
 - 0.77 million reduced price
 - 2.1 million full price



Over 50% of America's Children Qualify for Free/ RP Meals at School

THE HEALTHY EATING INDEX

HEI-2010 Total and Component Scores¹ for the U.S. Total Population, Children and Older Adults, NHANES 2011-2012

HEI-2010 Dietary Component (maximum score)	Total Population ≥ 2 years (n=7,933)	Children 2-17 years (n=2,857)	Older Adults ≥ 65 years (n=1,032)
Mean Score (standard error)			
Total fruit (5)	3.00 (0.11)	3.91 (0.18)	3.84 (0.22)
Whole fruit (5)	4.01 (0.17)	4.78 (0.22)	4.99 (0.05)
Total vegetables (5)	3.36 (0.08)	2.10 (0.09)	4.16 (0.19)
Greens and beans (5)	2.98 (0.15)	0.70 (0.09)	3.58 (0.47)
Whole grains (10)	2.86 (0.13)	2.50 (0.10)	4.23 (0.34)
Dairy (10)	6.44 (0.14)	9.03 (0.22)	5.99 (0.16)
Total protein foods (5)	5.00 (0.00)	4.44 (0.13)	5.00 (0.00)
Seafood and plant proteins (5)	3.74 (0.20)	3.05 (0.17)	4.91(0.18)
Fatty acids (10)	4.66 (0.14)	3.29 (0.18)	5.60 (0.36)
Refined grains (10)	6.19 (0.15)	4.91 (0.16)	7.34 (0.31)
Sodium (10)	4.15 (0.06)	4.85 (0.25)	3.66 (0.26)
Empty calories (20)	12.60 (0.23)	11.50 (0.28)	14.99 (0.44)
Total HEI score (100)	59.00 (0.95)	55.07 (0.72)	68.29 (1.76)

¹Calculated using the population ratio method.



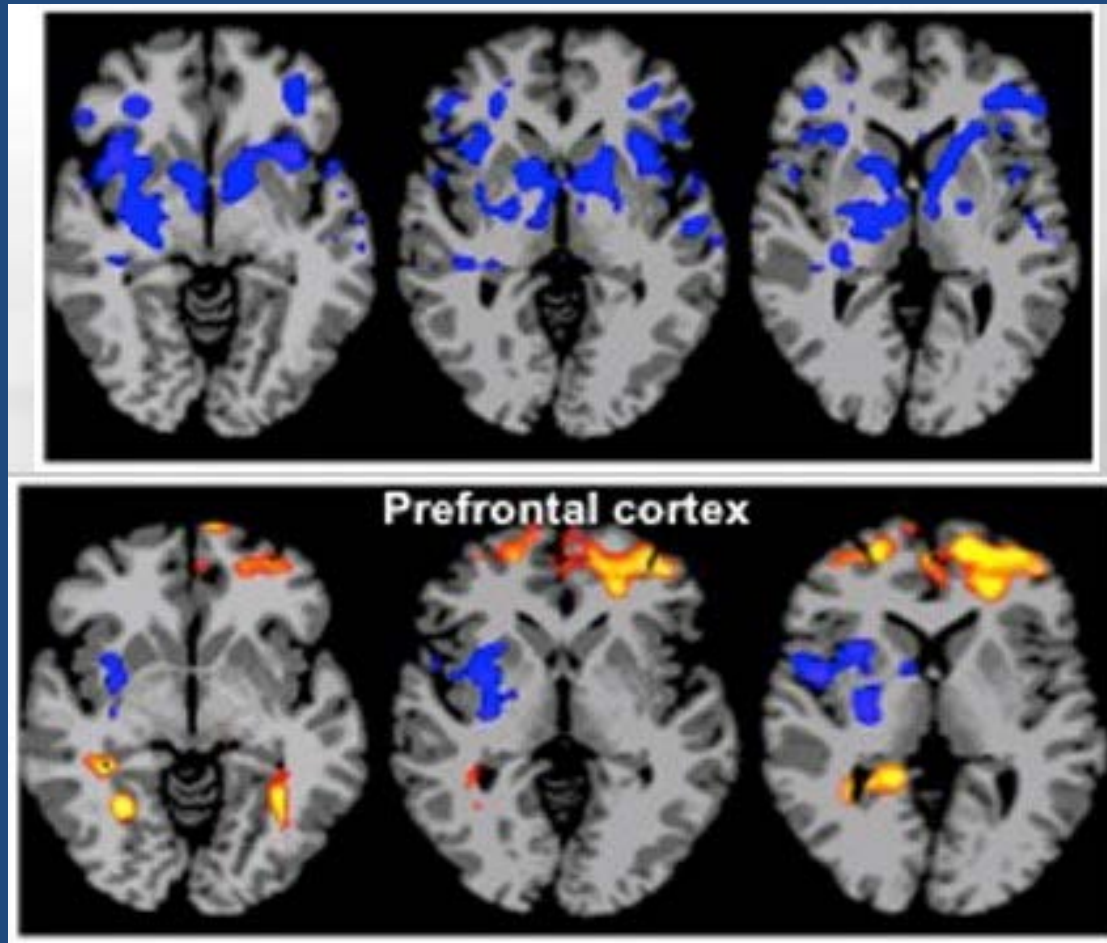
School Meals are *Quality Meals*

Between SY 2009-10 and SY 2014-15
The total HEI-2010 meal scores increased:

School Lunches: from 58 to 82 out of 100 ideal
School Breakfasts: from 50 to 71 of 100 ideal

Gearan and Fox, JAND, 2020:363-70

Fasting vs Glucose-Rich Brain



FASTING

The Mid-Brain
Food Seeking Mode

** Distracted,
irritable, restless,
anxious*

Glucose-rich

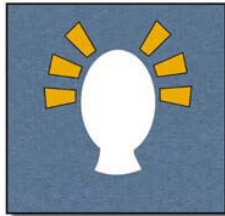
The Front Brain
Working Mode

** Calm, focused,
organized,
thoughtful*

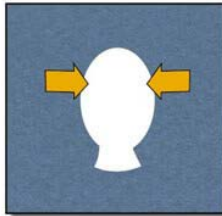
BREAK YOUR FAST

Learning = Encoding New Memories

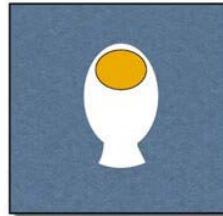
The Four Stages of Memory



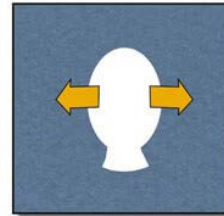
Attention



Encoding



Storage

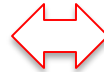
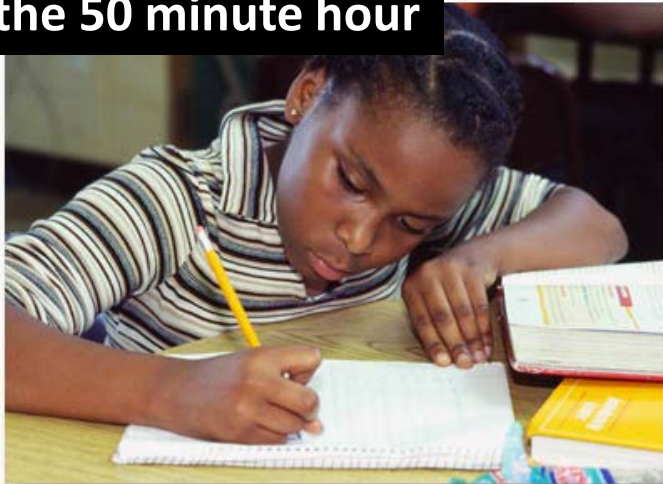


Retrieval

Encoding Information
requires
a brief “recess”
after intense learning



the 50 minute hour





- Better blood flow, more glucose, active cell function
- Enhances “working memory”
- Helps to sort new information
- Encodes into memory

*Information processing
is very responsive to
aerobic activity & fitness*

Activity Feeds Brain



Structured Play



Free Play

RECESS MATTERS

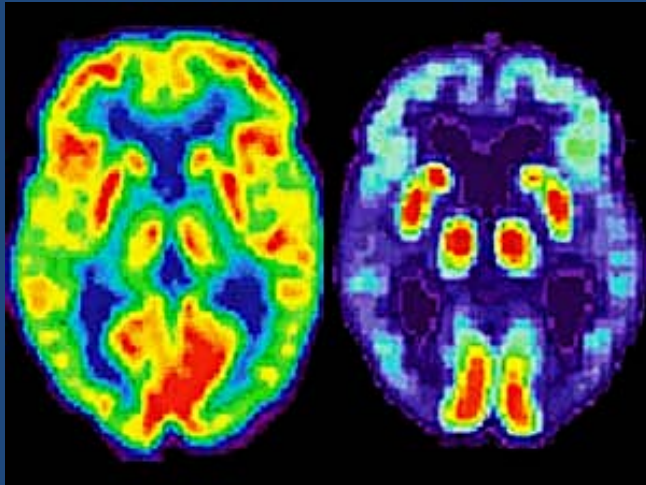
Peer-to-Peer Play Trains Brain

**Social
&
Emotional
Skills
are**

***Practiced
on the
Playground***



Sleep to Learn



Normal

Deprived

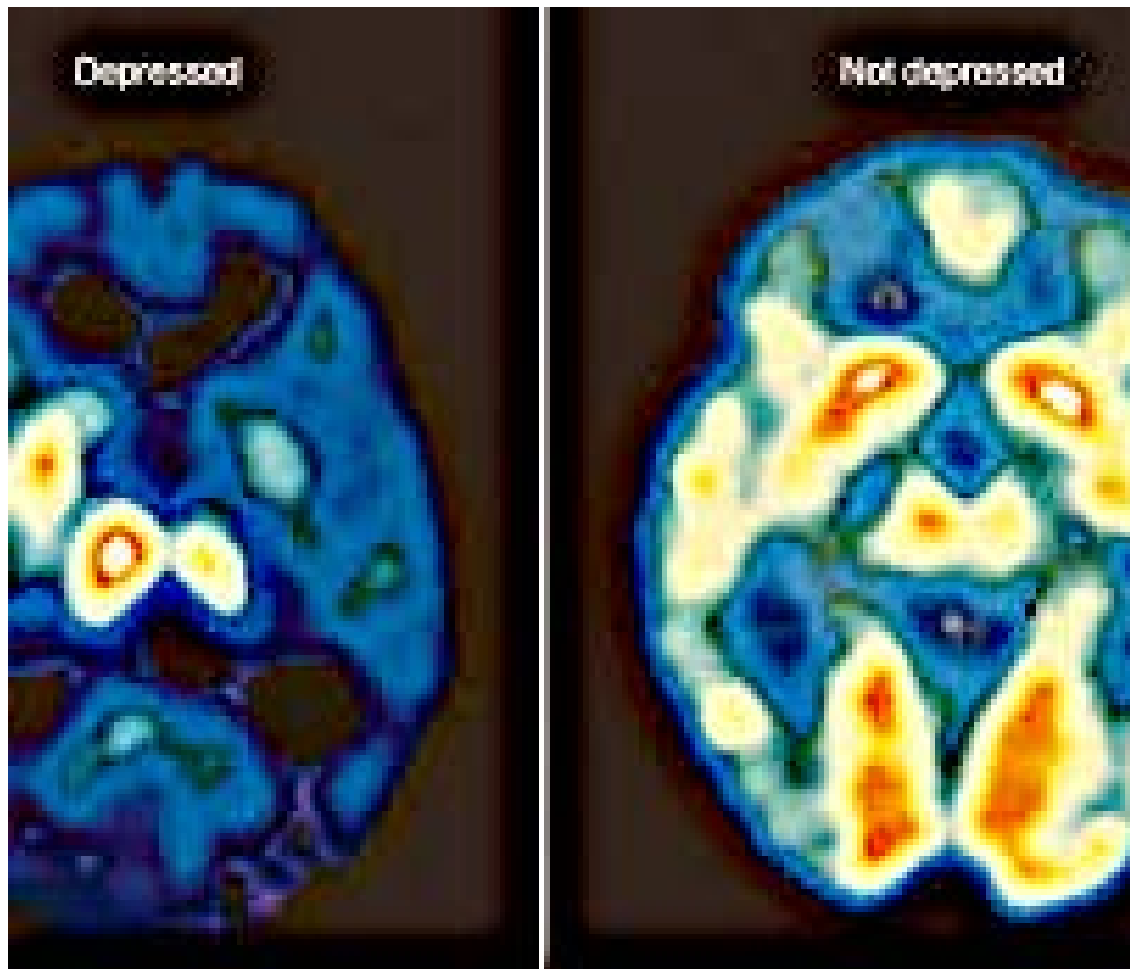
Memory, learning

Attention

Metabolism, hunger, weight

Depression, stress, anxiety

Executive functions

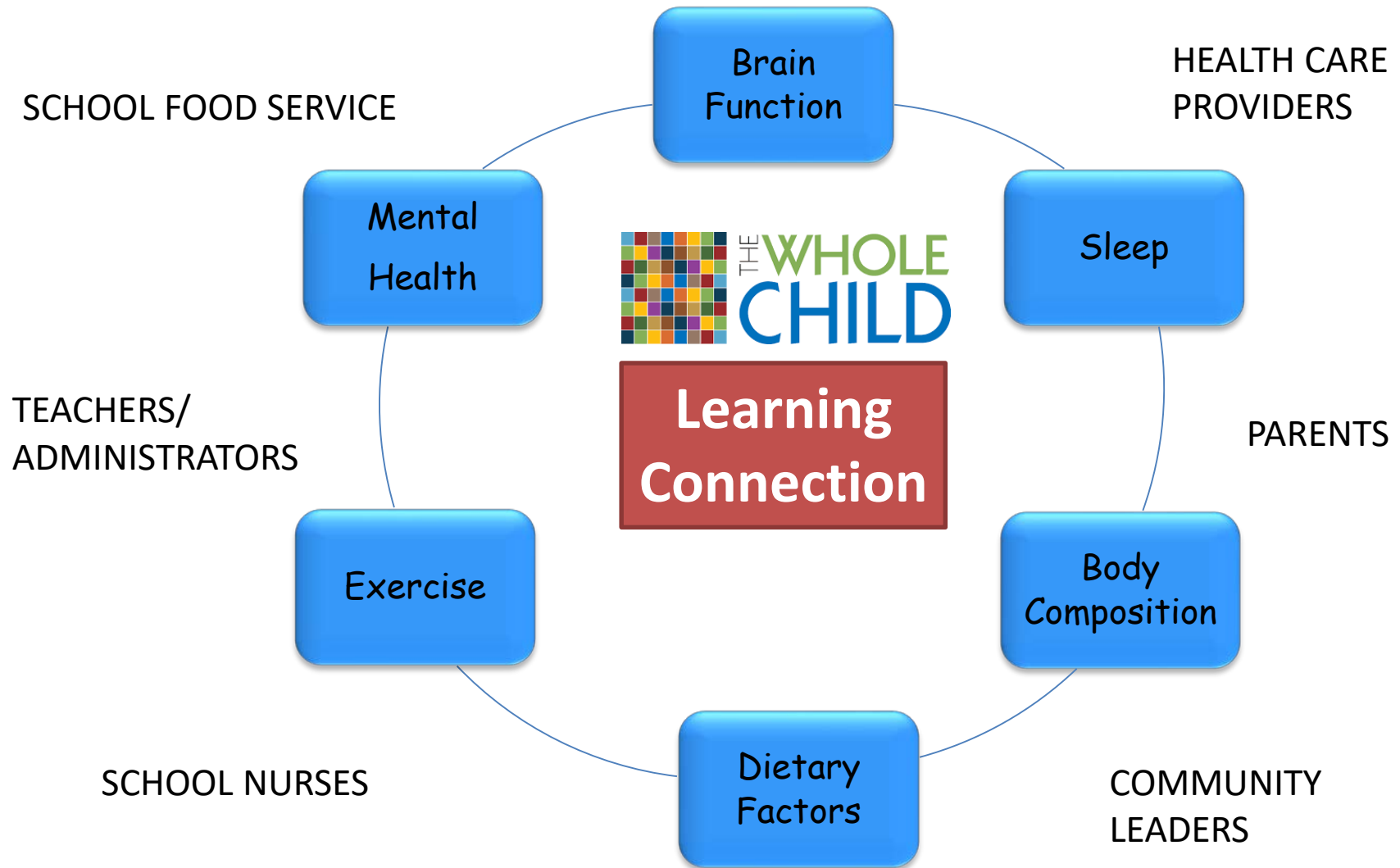


MENTAL HEALTH MATTERS

**Depression
Anxiety
&
Stress**

*Sap
the Brain*

Together, We Can Put a Better Student in the Chair



The background of the slide features a close-up, slightly blurred image of a person's hands holding a smartphone. The lighting is warm and focused on the hands, with a soft blue glow emanating from the screen area. The overall composition suggests a focus on technology and user interaction.

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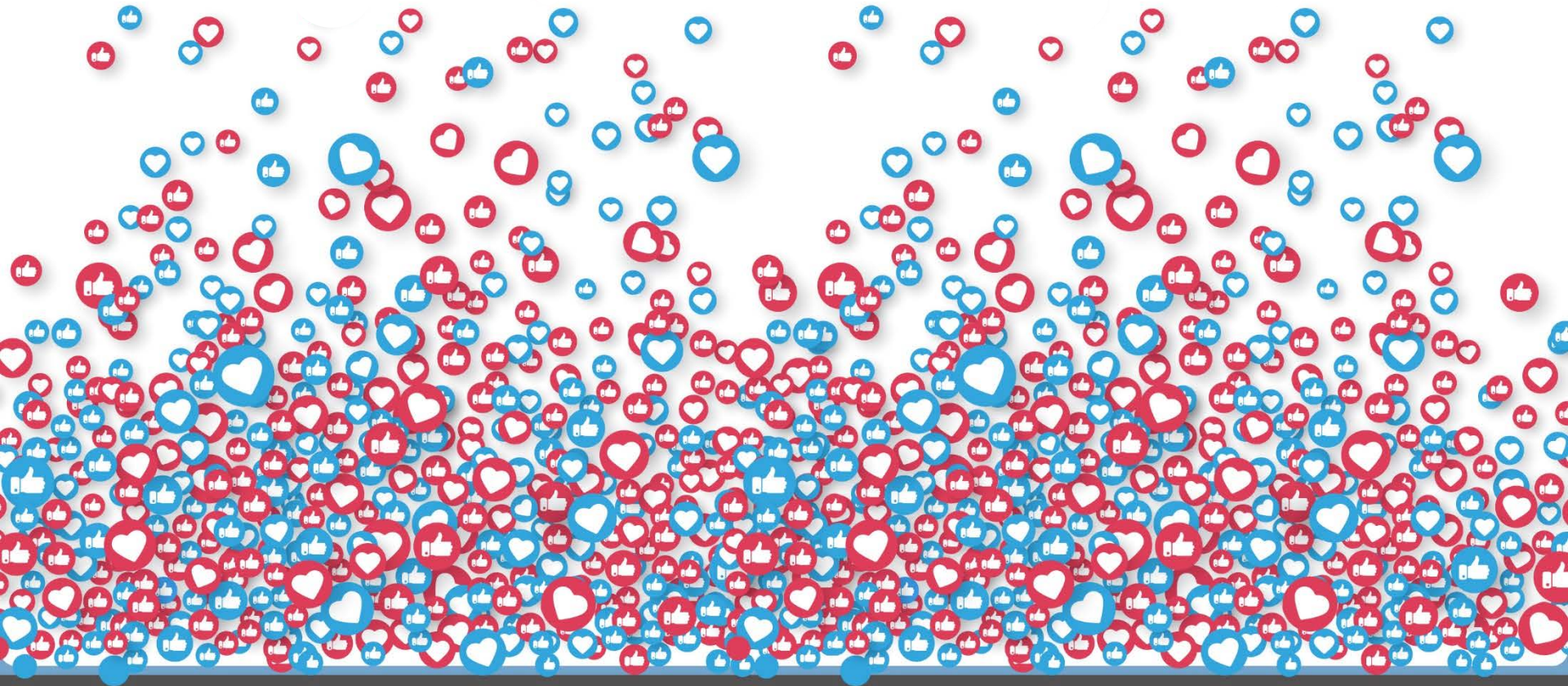
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community with us!**

#MyOhioClassroom



Celebrate educators!

#OhioLovesTeachers