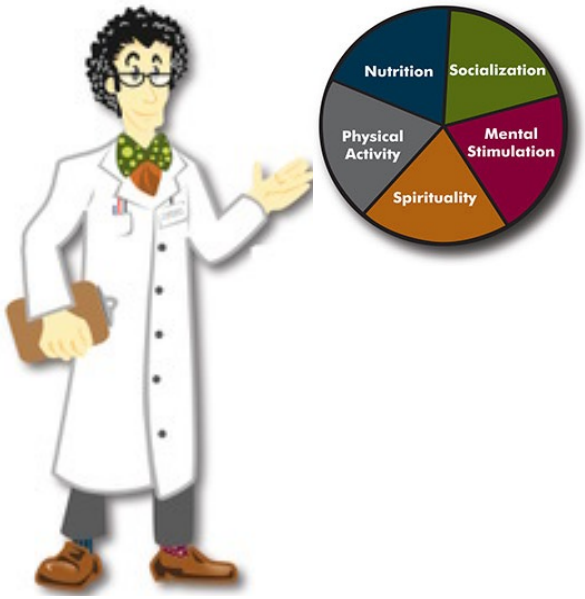
THE HUMAN BRAIN AND ARTIFICIAL INTELLIGENCE

Bridging the Miracle of the Human Brain to AI to Maximize Holistic Education



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Section I.	COVID
Section II.	Human Brain
Section III.	The Brain-Technology-and Education
Section IV.	Brain Healthy Schools-Next Steps

Section I: COVID

Dr. Nussbaum's Brain Health Lifestyle®

Sociocultural Stressors

1. Politicization of Everything
2. Riots-Anger-Attacks
3. Television and Social Media Hostility
4. COVID-19 (multifactor life changes)
5. ANTI-Blue Zone
6. Closing of Schools

Sociocultural Stressors Continued

7. Families at home and away from work
8. Financial Loss
9. Places of Worship Closed
10. Physical and Mental Illness/Death
11. Loss of Control and Identity
12. Neural Plasticity: Harm and Hope

Lifestyle vs Health for Chronic Stress

Chronic Stress Environment	**Brain and Body Health**
"Stress Zone"	**"Blue Zone"**
Sedentary	Physically Active
Social Isolation-alone	Social Integration-belong
High Sugar-Bad Fats-Processed Foods	Plant Based-Mediterranean
Caloric Excess-3 meals and snacks	Caloric Restriction-Include Fasting
Psychosocial Stress	Sense of Control-Adaptive
Passive and Rote	Novel and Complex
Lack of Sunshine-Limited Outdoors	Sunshine and Daylight
Sleep Disruption	Sleep Regulation
Economic Vulnerability	Economic Stability
Financial pain and ruin	Financial health
No Relationship to Prayer or God	Relationship to God and Prayer
Loneliness	Emotionally Connected
Failure to Thrive	Hope and Zest for Life

Morbidity and Mortality Weekly Report (*MMWR*)

CDC

Symptoms of Anxiety or Depressive Disorder and Use of Mental Health Care Among Adults During the COVID-19 Pandemic — United States, August 2020–February 2021

Weekly / April 2, 2021 / 70(13);490–494

On March 26, 2021, this report was posted online as an MMWR *Early Release.*

Anjel Vahratian, PhD[1]; Stephen J. Blumberg, PhD[1]; Emily P. Terlizzi, MPH[1]; Jeannine S. Schiller, MPH[1] (View author affiliations)

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View suggested citation

Summary

What is already known about this topic?

Large disease outbreaks have been associated with mental health problems.

What is added by this report?

During August 2020–February 2021, the percentage of adults with recent symptoms of an anxiety or a depressive disorder increased from 36.4% to 41.5%, and the percentage of those reporting an unmet mental health care need increased from 9.2% to 11.7%. Increases were largest among adults aged 18–29 years and those with less than a high school education.

What are the implications for public health practice?

Trends in mental health can be used to evaluate the impact of strategies addressing adult mental health status and care during the pandemic and to guide interventions for disproportionately affected groups.

Article Metrics

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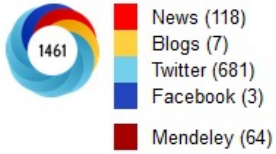

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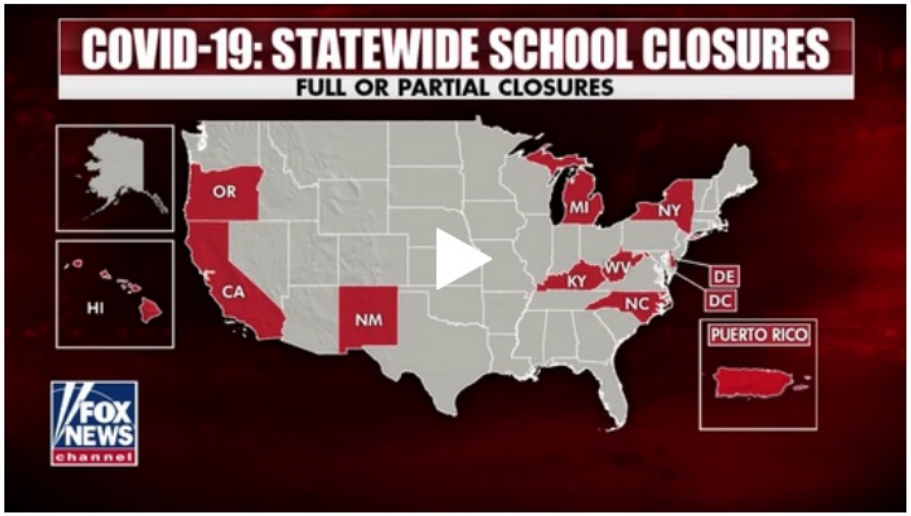
Metric Details

EDUCATION · **Published** December 1

Students failing more often during coronavirus virtual learning: study

Students with two or more F marks increased 83% in first quarter of the 2020-2021 school year

By **Audrey Conklin | Fox News**



10 states, DC have closed all schools due to coronavirus pandemic

Partnership Schools Superintendent Kathleen Porter-Magee weighs in on 'Fox & Friends Weekend.'

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CORONAVIRUS · **Published** February 12

CDC director says negative effects of distance learning outstrip transmission risk from in-school learning

'There is more spread that is happening in the community when schools are not open than when schools are open'

By **Brooke Singman, Caitlin McFall | Fox News**

AVerMedia

U.S. Suicides Declined Over All in 2020 but May Have Risen Among People of Color

Despite dire predictions, the number of suicides fell by 5 percent over all. Still, smaller studies suggested the trends were much worse among nonwhite Americans.

Mental health experts worried that grief, financial strain and social isolation would create the "perfect storm" for a rise in suicides last year. That did not happen, new data suggest. John Taggart for The New York Times

By Roni Caryn Rabin

April 15, 2021

AAP News

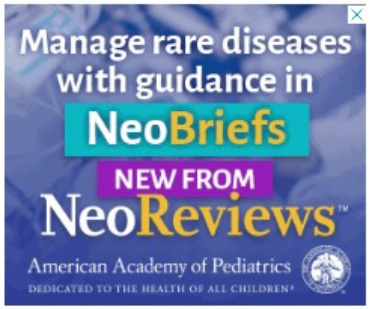
Study: Suicidal behavior in youths higher during COVID-19 closures than in 2019

Trisha Korioth, Staff Writer
December 16, 2020

Rates of suicidal ideation and suicide attempts were higher in some months in 2020 compared to 2019, according to a study of 11- to 21-year-olds in a major metropolitan area of Texas.

Significantly higher rates of suicide-related behaviors appear to have corresponded with times when COVID-19 stressors and community responses (e.g., stay-at-home orders and school closures) were heightened, indicating that youth experienced elevated distress during these periods, according to "Suicide Ideation and Attempts in a Pediatric Emergency Department Before and During COVID-19" (Hill RM, et al. Pediatrics. Dec. 16, 2020).

Researchers analyzed electronic health record data from 18,247 youths presenting for any complaint to a large pediatric emergency department (ED). Of the 12,827 youths who completed a suicide risk screening, 59% were female and the mean age was 14.5 years. About 48% were Hispanic/Latinx, 26.8%



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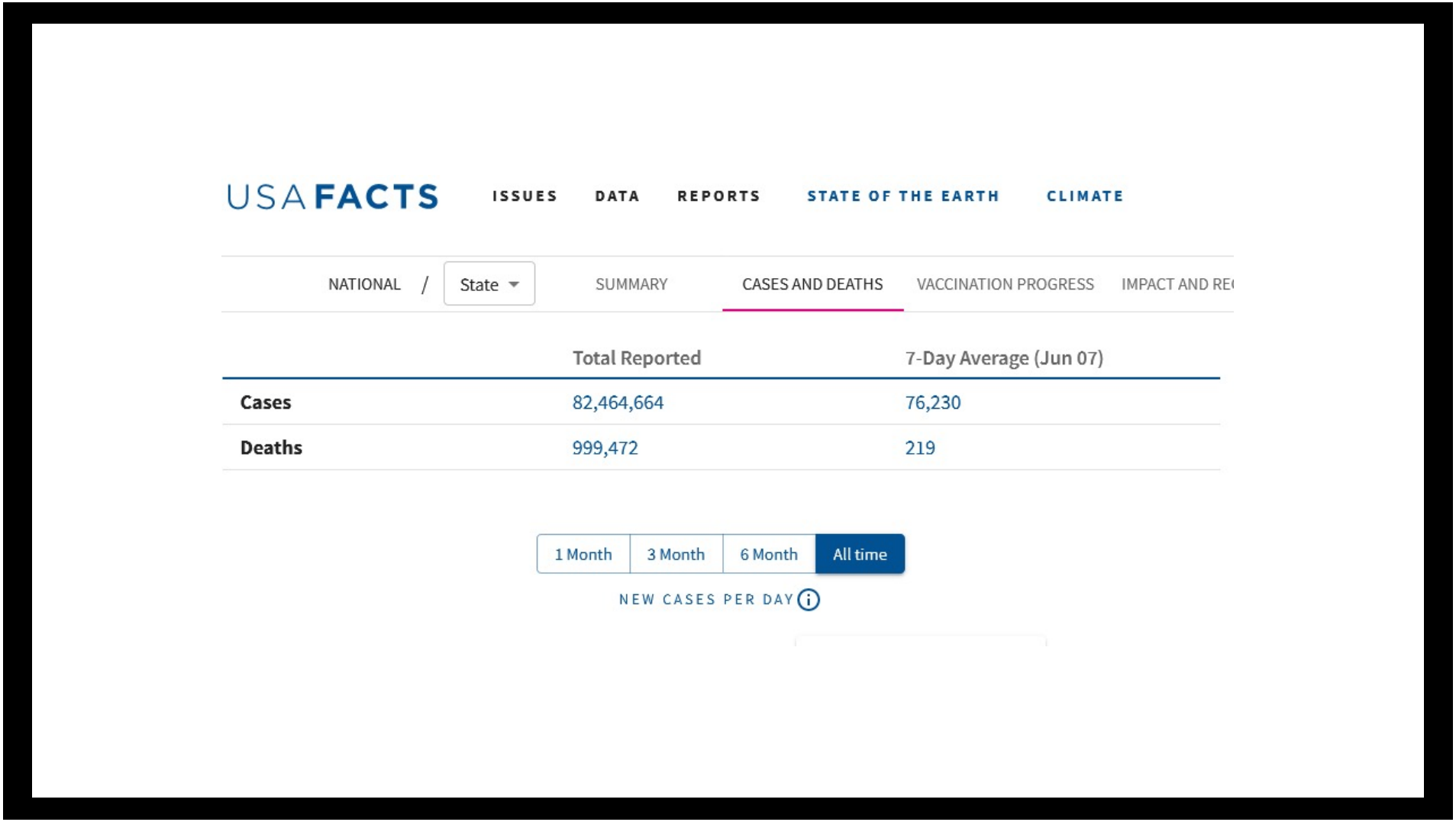
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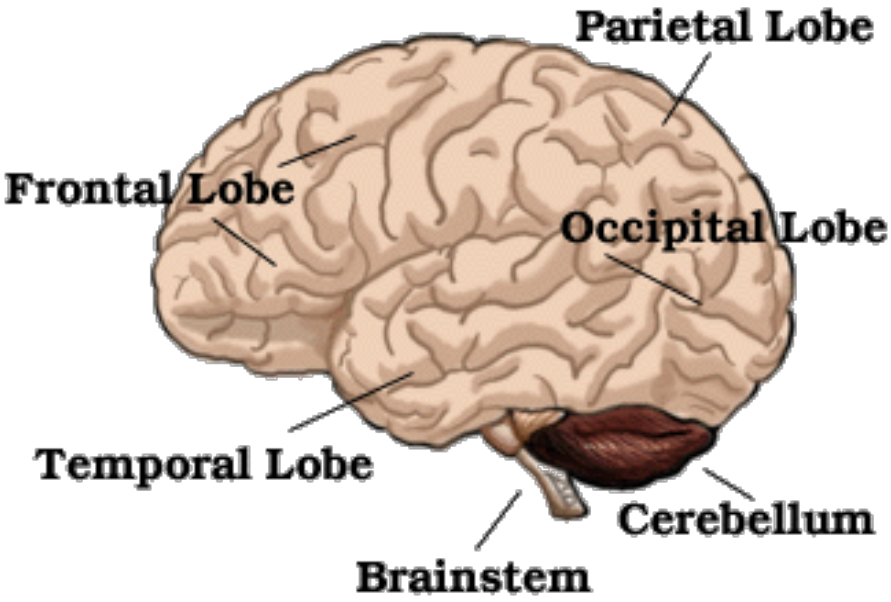
ISSUES
DATA
REPORTS
STATE OF THE EARTH
CLIMATE
NATIONAL / State
SUMMARY
CASES AND DEATHS
VACCINATION PROGRESS
IMPACT AND RE
Total Reported
7-Day Average (Jun 07)
Cases
82,464,664
76,230
Deaths
999,472
219
1 Month
3 Month
6 Month
All time
NEW CASES PER DAY

Section II: Human Brain

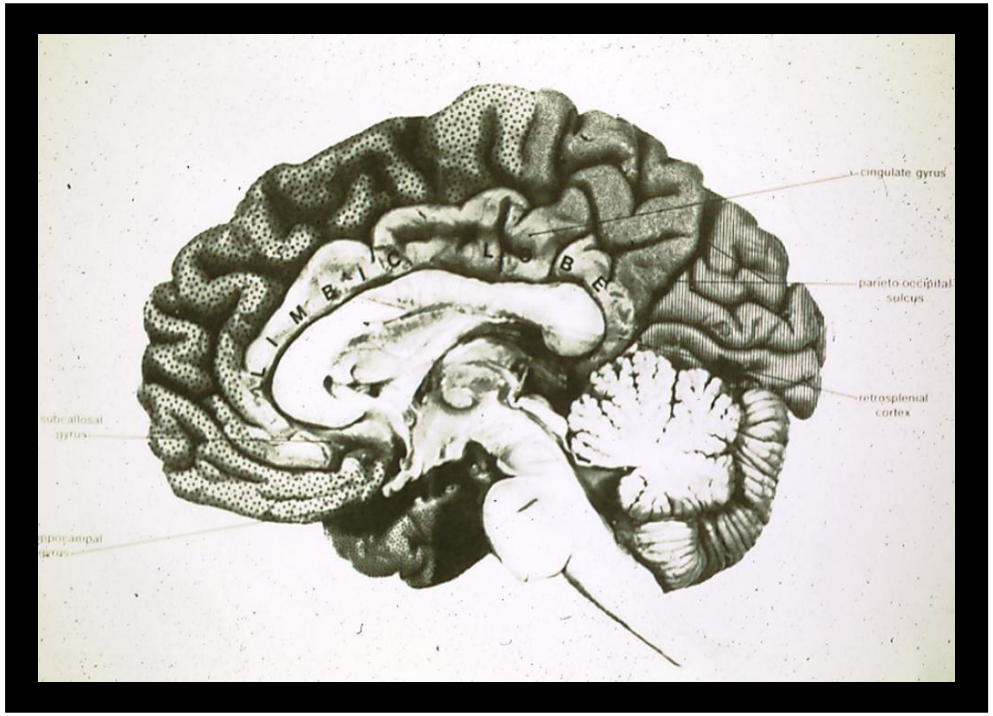
Dr. Nussbaum's Brain Health Lifestyle®

Basics of Your Brain

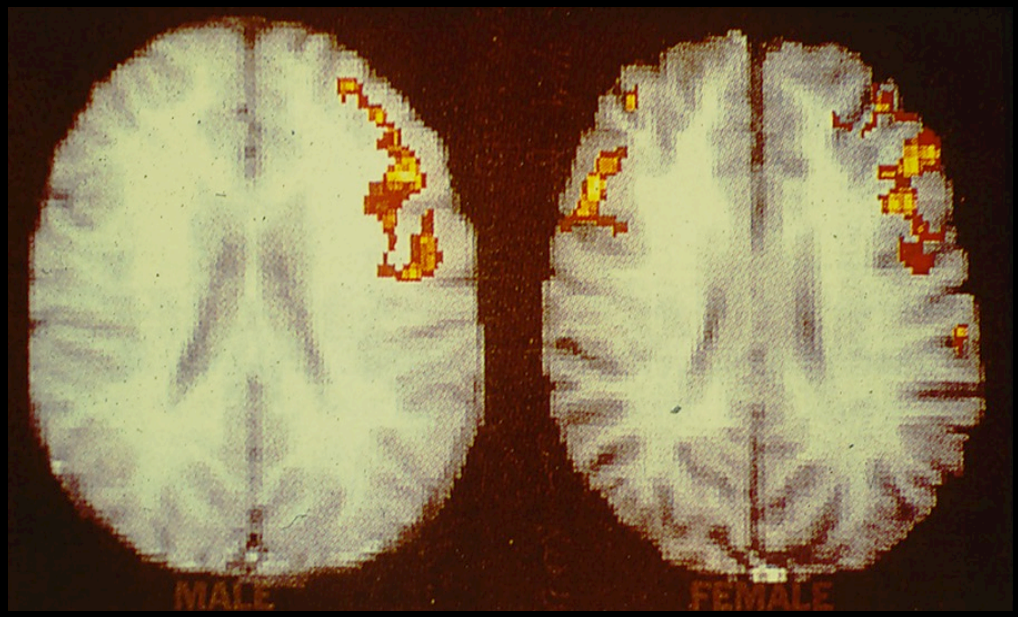
Cortex



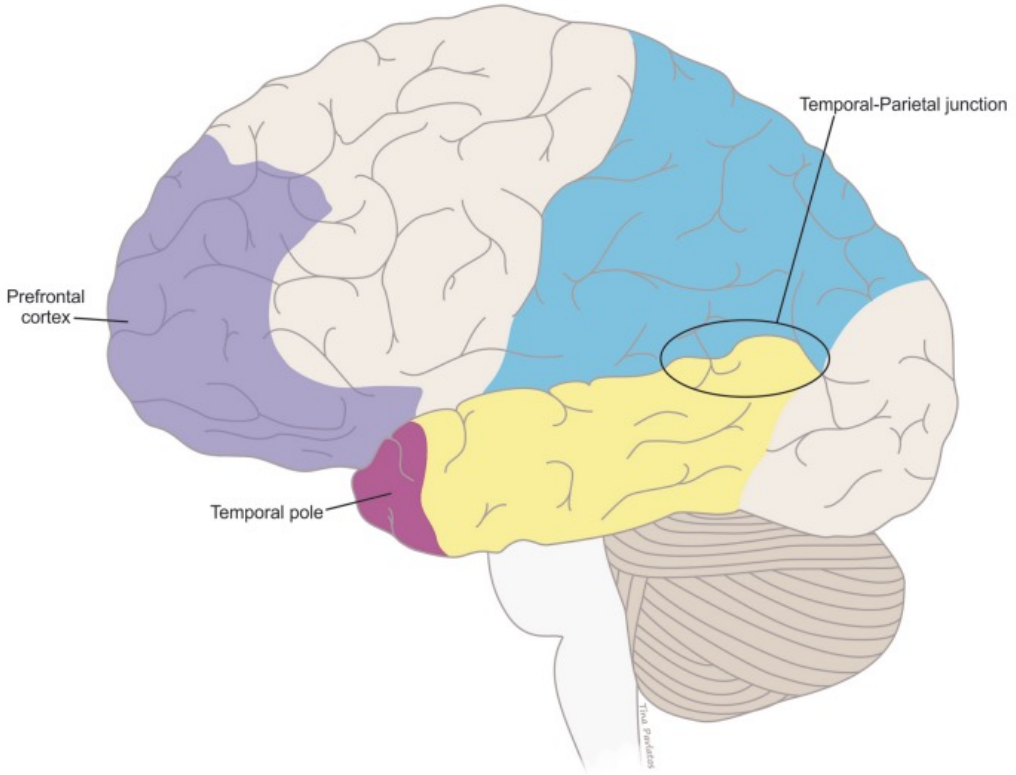
Subcortex


cingulate gyrus
parieto-occipital sulcus
retrosplenial cortex

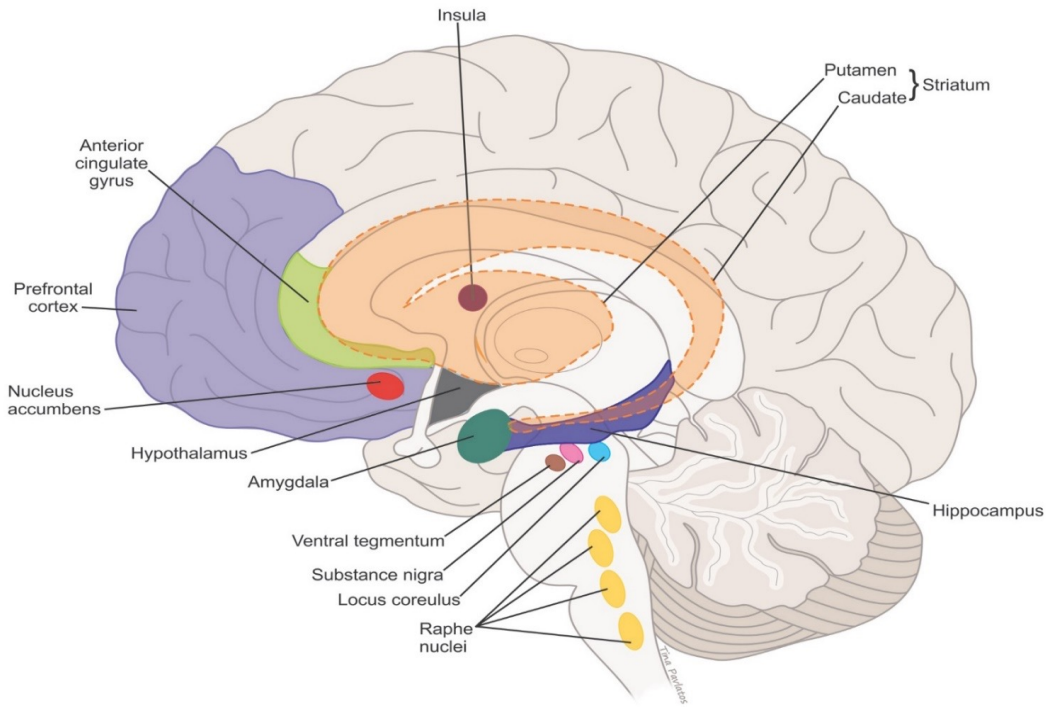
Hemispheres



Both sides of a woman's brain are used in processing language. A man's brain is more compartmentalized.


Temporal-Parietal junction
Prefrontal cortex
Temporal pole

Reward System of Brain



THE MIND

Q&A — Neuroscientist Jeff Lichtman

Mapping the brain to understand the mind

New technology is enabling neuroscientists to make increasingly detailed wiring diagrams that could yield new insights into brain function

By Monique Brouillette | 04.21.2022

Section III: The Brain-Technology-and Education

Dr. Nussbaum's Brain Health Lifestyle®

NEUROSCIENCE

U.S. Kids Are Falling behind Global Competition, but Brain Science Shows How to Catch Up

Paid parental leave and high-quality child care improve children's brain development and prospects for a better future

By Dana Suskind, Lydia Denworth on June 1, 2022
Scientific American June 2022 Issue

30 Oct 2019

Artificial Intelligence vs. Human Brain.

The conflict of human skills and machine potential. Who wins the battle?

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ARTIFICIAL INTELLIGENCE | OPINION

Artificial General Intelligence Is Not as Imminent as You Might Think

A close look reveals that the newest systems, including DeepMind's much-hyped Gato, are still stymied by the same old problems

By Gary Marcus on June 6, 2022

NEUROSCIENCE

How the Brain 'Constructs' the Outside World

Neural activity probes your physical surroundings to select just the information needed to survive and flourish

By György Buzsáki on June 1, 2022

SYFY

Your brain may really replay your entire life before you die

Elizabeth Rayne

March 17, 2022 · 3 min read

You know how it's always been whispered that right before you die, scenes from your entire life flash through your head like a movie being fast-forwarded at warp speed?

Science News *from research organizations*

Changes in London taxi drivers' brains driven by acquiring 'the Knowledge'

Date: December 22, 2011

Source: Wellcome Trust

Summary: Acquiring 'the Knowledge' – the complex layout of central London's 25,000 streets and thousands of places of interest – causes structural changes in the brain and changes to memory in the capital's taxi drivers, new research has shown.

Navigation expertise and the human hippocampus: a structural brain imaging analysis

Eleanor A Maguire [1], Hugo J Spiers, Catriona D Good, Tom Hartley, Richard S J Frackowiak, Neil Burgess

Affiliations + expand

PMID: 12699332 DOI: 10.1002/hipo.10087

London taxi drivers and bus drivers: a structural MRI and neuropsychological analysis

Eleanor A Maguire [1], Katherine Woollett, Hugo J Spiers

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PMID: 17024677 DOI: 10.1002/hipo.20233

MORE

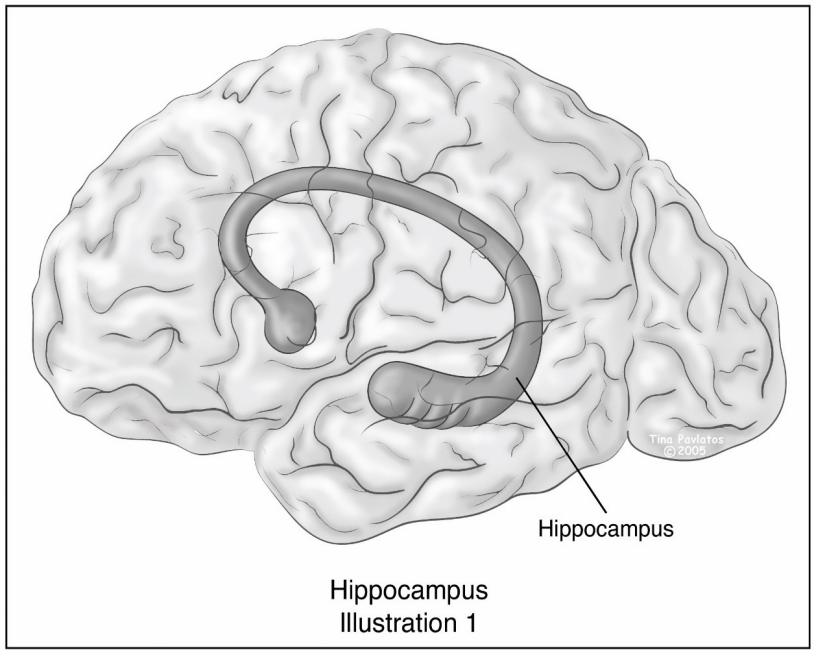
LIVESCIENCE

Live Science > Health

Using GPS Devices May Switch Off Your Brain's GPS

By Bahar Gholipour, Contributing Writer | March 21, 2017 03:54pm ET

Hippocampus



Hippocampus
Illustration 1

Liliana developing her Visuospatial Skills

Section IV: Brain Healthy Schools-Next Steps

Dr. Nussbaum's Brain Health Lifestyle®

Elements of A Brain Healthy School

1. Safe Environment

A. Learning cannot occur without safety
B. Brain functions best when focused and balanced
C. Cortex functions if safe-Survival functions are primary if not safe
D. All necessary protocols and policies to make schools safe

Elements of A Brain Healthy School

2. Brain Health Curriculum-Basic of Brain and Plasticity (Neuroscience Bridge to Education)

A. Culture of Brain Health and Enriched Environments is approved and applied (Neural Plasticity insights)

B. Establish district wide core curriculum that teaches brain basics for teachers, students, and Admin that is taught each year-bridge to existing and ongoing curriculum

C. Integrate brain health within established health courses

D. Establish measures of outcome that are specific to district and state goals

Elements of A Brain Healthy School

Brain Health Curriculum-Basic of Brain and Plasticity (Neuroscience Bridge to Education) continued

E. Maintain a portal of expertise-people and information that can be accessed by district families and education professionals

F. Incentivize neuroscience updates and projects for students and quarterly or annual workshops for teachers

G. Consider the importance of day-lighting on learning and appropriate times of day for learning with developing brains

Elements of A Brain Healthy School

3. Integrative Curriculum (Avoid Silos)

A. Brain processing is maximized with multisensory stimulation. As such, integrating courses in Math, English, Music, Gym, etc. makes sense from a learning and enrichment perspective
B. Identify and educate the how and why of lesson plans and teaching-learning approaches to students from Brain Health Perspective
C. Consider alternative settings outside the classroom for learning (Use of technology)

Elements of A Brain Healthy School

Integrative Curriculum (Avoid Silos) continued

D. Incentivize visualization, breathing exercises, meditation to begin and end the day and prior to tests.

E. Movement important to learning and creativity

F. Recognize and work with emotional systems of brain (passion breeds success and innovation)

Elements of A Brain Healthy School

4. Embrace and Apply Dr. N's Brain Health Lifestyle®

A. Maximize movement, physical activity as part of the learning experience in school
B. Increase research based brain health nutrition and educational information for families on such
C. Reinforce breathing exercises, meditation, yoga, and visualization to reduce anxiety and increase neuronal balance (spiritual health)

Elements of A Brain Healthy School

Embrace and Apply Dr. N's Brain Health Lifestyle® continued

D. Maximize socialization within the learning environment

E. Focus on the Novel and Complex-mental stimulation- within the learning environment

F. Teach the importance of sleep for learning and health

Elements of A Brain Healthy School

5. Neurospiritual Health and Learning

A. Schools can reinforce Acts of Kindness (A-OK)

B. Core-Practice of Kindness, Humility, Love, Forgiveness, Empathy, Patience, and Compassion (fuels Reward System) and sets foundation for Emotional/Brain Health

C. Education and Brain Health are holistic by design and both can target RRR and Dr. N's 5 Pillars of Brain Health

Elements of A Brain Healthy School

Neurospiritual Health and Learning continued

D. Human to human contact and integration will always be superior to distance learning from a neurobiological and health perspective.

E. Daily check ins with staff, admin, and students on the psyche of the school is a good thing and well worth the time.

F. Maintain traditional clinical interventions while fostering open communication, open learning and sharing sessions on the import of mental health, and use technology to provide confidential bridging to those in need and to help alert of possible difficulties

CORONAVIRUS · **Published** February 12

CDC director says negative effects of distance learning outstrip transmission risk from in-school learning

'There is more spread that is happening in the community when schools are not open than when schools are open'

By **Brooke Singman, Caitlin McFall | Fox News**

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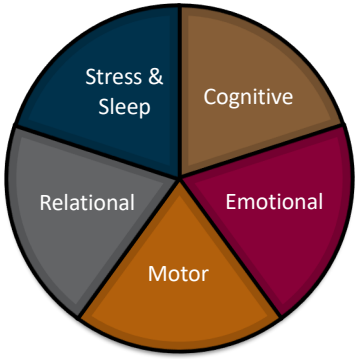
Tracking Data for Brain Health-Learning

Dr. Nussbaum's Brain Health Lifestyle®

Holistic Education



Educational Outcomes

Tracking My Health and Wellness

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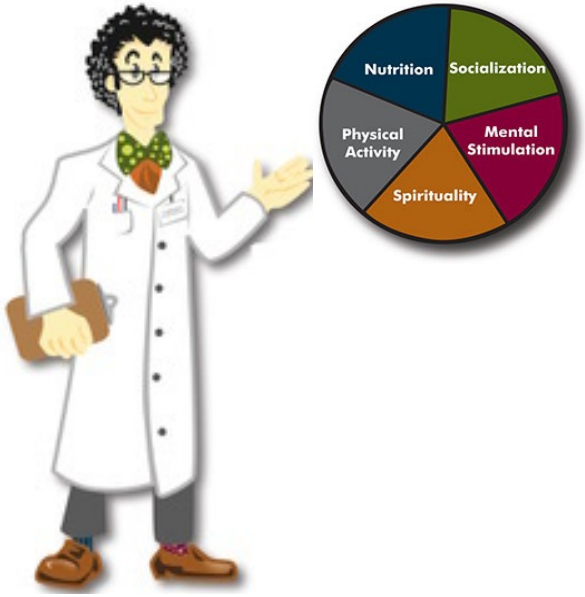
Summary

1. Artificial intelligence will not eclipse Real intelligence (Bet on the Brain)
2. Technology including AI is here to stay and will continue to affect our professional and personal lives
3. Children and adults are now native to technology
4. The human brain has unlimited capacity and can be shaped cognitively, emotionally, socially, physically and spiritually
5. Shaping the brain for development in all spheres is “Holistic Education”

Summary Continued

6. A healthy brain facilitates holistic educational development leading to innovation, creativity, emotional intelligence, and relational depth
7. Technology can be happily married to this approach
8. Schools can integrate a culture of Brain Health with Holistic Education using Technology and AI to maximize learning and personal development
9. Data analytics is a critical methodology and feedback practice to reinforce such cultural and personal behavior change
10. Students, parents, teachers, administrators, boards and community partners form the Team



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