EXECUTIVE WHITE PAPER

AI Transformation and the Human Brain

What Leaders Must Protect as Work Changes

LeRoy Thompson & Associates, LLC |

The Human Cost of Keeping Up

An organization brings in AI to make work easier. Documents appear in seconds. Customers get instant answers. An analysis that once took a day lands before lunch.

Then comes the question that rarely makes the project plan: what happens to the people? The employee whose report now takes an hour may leave earlier, or may inherit five more reports. The service representative may get useful help, or may spend the whole shift on the hard cases automation can't resolve. The junior professional may build expertise, or may turn out polished work without the understanding to defend it. A team that has grown more productive may feel more secure, or may hear that its success makes a smaller team possible.

These are questions about the conditions under which people think, learn, recover, and keep a sense of competence and safety. We think they belong at the center of any serious discussion of brain health and resilience during AI transformation. The effects won't follow one pattern. AI can remove tedious work, improve accessibility, and help people solve problems. It can also raise demands, change relationships, tighten monitoring, and make the future harder to predict. The same capability produces different outcomes depending on staffing, expectations, training, and how much control people keep. Most of that sits with the system, not with the individual.

The chain to examine:

AI changes an activity → **Human demands or resources shift** → **Cognition, well-being, and recovery may change**

> **WHAT THE EVIDENCE CAN AND CAN'T SAY**
>
> Research is beginning to document the first two links. Established neuroscience helps explain part of the third. But most workplace AI studies haven't measured brain structure, stress hormones, or long-term neurological health. Evidence that employees feel overloaded isn't evidence that AI has damaged their brains. The absence of a brain scan doesn't make their exhaustion unimportant, either.

What follows separates documented research from hypothetical workplace scenarios and says plainly where each study stops. Eleven pressure points fall into three areas: the brain under pressure; our sense of self, connection, and safety; and the conditions for resilience. A final section turns to what leaders can do.

#	Pressure point	What can change at work	What to protect
1	Mental overload	Output multiplies faster than it can be reviewed	Uninterrupted time to understand what's approved
2	Stress and uncertainty	Accountability for output whose limits are unclear	Clear boundaries; time to verify; honest job messages
3	Learning	Tasks finish without understanding being built	Practice that builds independent judgment
4	Sleep and recovery	Learning and checking spill into evenings	Boundaries around hours and training
5	Identity	Volume of output eclipses judgment	Recognition of expertise
6	Connection	Questions go to the system, not to colleagues	Mentoring and reliable human contact
7	Trust	Voices and documents may be fabricated	Verification procedures; permission to pause
8	Autonomy and privacy	AI becomes an evaluator	Clear criteria and meaningful human review
9	Adaptation	New systems arrive before old ones settle	Stable, supported learning periods
10	Equity	Resources to cope differ widely	Paid, accessible learning time
11	Cumulative strain	Work change meets pressures at home	Assessment of the whole load

PART I The Brain Under Pressure

1 Faster Drafts Can Mean Slower Decisions

AI can reduce the effort needed to produce something while increasing what someone else has to understand. A colleague generates a long proposal in minutes. Another must still check its assumptions, reconcile it with existing commitments, spot what's missing, and decide whether it will work. If everyone produces more, the organization can accumulate more material than its people can thoughtfully evaluate. Efficiency at the task level coexists with overload at the human level.

Research	What it found	What it can't tell us
Berkeley Haas field study [1]	Over eight months at a roughly 200-person technology company, employees worked faster, took on a broader scope of tasks, and extended work into more hours of the day, often without being asked.	One company; qualitative observation and interviews, described as in-progress research. It documents a credible route from capability to demand, not proof that every deployment intensifies work.

HYPOTHETICAL

A marketing team once developed three campaign concepts and debated them. Now it generates thirty, with multiple versions of each, and is expected to choose among them by the original deadline. Drafting got easier. Selection, comparison, and accountability expanded.

IN THE BRAIN

Selecting, comparing, and holding a goal in mind depend on working memory and attentional control. These draw on frontal and parietal regions, including the dorsolateral prefrontal cortex [2][3]. They let a person keep the budget constraint in view while comparing ideas, notice an inconsistency, or return to the task after an interruption. Repeated demands on that limited capacity can leave someone completing many small actions while losing the thread of the whole project.

AI also adds a new kind of supervision: several automated processes running at once, each needing occasional intervention. The human tracks what each is doing, when its output matters, and when to step in. Apparent stillness while a system runs can involve a great deal of anticipation. The practical question is larger than how many minutes a tool saves.

WHAT TO PROTECT

- Ask what happens to the minutes a tool saves, and count the review it creates.
- Protect uninterrupted time to understand what people are approving.

2 Responsibility Without Dependable Control Breeds Stress

AI changes both the work people do and their confidence about what happens next. Employees may be asked to use a system whose limits are unclear, stay accountable for its mistakes, and show productivity gains before a reliable workflow exists, all while hearing mixed messages on whether the technology will support their jobs or replace them.

Research	What it found	What it can't tell us
BCG consultant experiment [4]	AI helped on tasks within its capabilities. On a task deliberately chosen to fall outside them, consultants using AI were 19 percentage points less likely to reach the correct answer (about 750 consultants).	It measured performance, not stress. It shows that effectiveness can vary across tasks that look related, so employees can't assume a tool is reliable everywhere.

Research	What it found	What it can't tell us
Acute-stress experiment [3]	Healthy adults under psychological stress showed reduced working-memory-related activity in the dorsolateral prefrontal cortex.	A laboratory study; effects vary with timing, intensity, and task. Stress doesn't universally disable judgment.

HYPOTHETICAL

An analyst is told to rely on AI for speed and also told that any error is entirely theirs. Careful checking takes time. Checking less creates risk. If management counts only the time saved producing the answer, the analyst faces two incompatible expectations.

IN THE BRAIN

Threat and uncertainty engage interacting systems. The amygdala helps detect and learn about emotionally significant events, the hippocampus supplies memory and context, and prefrontal regions help evaluate the situation and choose a response. It isn't a contest between an "emotional brain" and a "rational brain." The hypothalamus links this appraisal to the body through the hypothalamic–pituitary–adrenal axis, which ends in cortisol release. Cortisol is necessary for normal functioning; trouble comes when stress responses are repeatedly activated or poorly regulated [5].

Uncertainty should be managed collectively. Asking individuals to become more resilient while leaving contradictory expectations in place doesn't touch the source of the strain.

WHAT TO PROTECT

- Clear boundaries around approved uses of AI.
- Time for verification, and accountability that matches authority.
- Honest, early communication about job changes.

3 Finishing a Task Is Not the Same as Learning It

What a person can accomplish with help and what that person understands alone are different things. Expertise usually grows through participation: attempting a solution, hitting difficulty, getting feedback, revising an explanation. If assistance removes those experiences, output improves without matching growth in competence.

Research	What it found	What it can't tell us
Anthropic coding study [6]	In a controlled experiment, 52 mostly junior engineers learned an unfamiliar Python library. The AI-assisted group averaged 50% on a later comprehension quiz versus 67% for hand-coders; the speed gain (about two minutes) wasn't statistically significant. Seven who asked only conceptual questions scored higher than four who delegated the code.	Small, short-term, and reported by an AI developer. The authors say the interaction patterns, drawn from small subgroups, don't establish cause. It isn't evidence of lasting cognitive decline.
PNAS mathematics study [7]	Nearly 1,000 high school students: with a general-purpose GPT interface they did 48% better in practice but 17% worse on a later exam without it. A tutor version with safeguards ended up about level with the control group.	One educational setting. It shows why performance during assistance can't stand in for learning.

HYPOTHETICAL

A junior accountant uses AI to explain an unusual transaction and draft the memo. The memo is adequate. Can the accountant explain why the treatment is right, recognize a similar issue next month, or notice when the system missed an exception?

IN THE BRAIN

Learning relies on encoding, retrieval, and the build-up of organized knowledge. The hippocampus helps establish new declarative memories, distributed cortical systems represent what a person knows, and prefrontal systems organize it and guide its use. These depend on what the learner actually does with the material, and none of the AI studies above measured them. It would be wrong to say delegation makes the hippocampus deteriorate. The defensible concern is displaced practice: repeatedly bypassing reasoning leaves fewer chances to build the judgment that future independent work requires.

That creates an organizational vulnerability. Companies may demand more human oversight while shrinking the experiences that produce capable overseers.

WHAT TO PROTECT

- Ask people to explain consequential decisions.
- Use AI for hints or critique before full solutions, and keep some independent exercises.
- Assess understanding apart from polished output, and count learning time as work.

4 The Workday Follows People Home

AI connects to sleep only through intervening conditions, so it helps to name them. One is time displacement: training, experimenting, troubleshooting, and checking that don't fit into an already full day. Another is continued mental engagement, when someone stops working physically but keeps worrying about an automated decision, an unexplained score, or their future role. A third is weakened boundaries. When starting another task takes one short prompt, it's easy to begin at dinner or before bed, and the output then wants attention. These are plausible mechanisms, not proof that AI users sleep less.

Research	What it found	What it can't tell us
Applied Psychology research program [8]	Four studies of 794 employees in Taiwan, Indonesia, the United States, and Malaysia linked interacting with AI at work to greater loneliness, and loneliness to more insomnia and more after-work drinking, especially among people high in attachment anxiety.	Mixed methods (survey, field experiment, simulation). It doesn't show that AI universally causes sleep disorders, and it identifies no neurological injury.
Sleep-loss and memory experiment [9]	One night of sleep deprivation reduced hippocampal activity during memory formation and impaired later retention.	An effect of sleep loss, not of AI.
Sleep-loss and emotion experiment [10]	After about 35 hours awake, 26 healthy adults showed a more reactive amygdala to negative images and weaker connectivity with prefrontal regions.	The same: an effect of sleep loss, not of AI.

Lost sleep matters here because it can erode the capacities people need to learn new systems and supervise them. A hypothetical cycle is easy to recognize: an employee trains after hours, sleeps less, has more trouble learning the next day, and then needs more evening time to catch up. The fix begins with the schedule and expectations that created the cycle.

Recovery also includes movement, meals, and medical care. If AI-assisted work becomes more sedentary or swallows breaks, that deserves attention. The National Institute on Aging notes that controlling blood pressure and other chronic conditions, regular physical activity, and enough sleep may support brain health [11]. Advice about bedtime routines doesn't help when the working day has quietly expanded.

PART II Our Sense of Self, Connection, and Safety

5 Expertise Is Part of Who People Are

For many people, competence is more than a marketable asset. It's a source of identity, belonging, and self-respect. A translator takes pride in sensitivity to meaning. A designer values turning an uncertain brief into an effective idea. An experienced administrator is the person who knows how the organization really works. AI can change how those contributions are recognized. If management starts valuing the volume of generated output over the judgment behind it, people can feel a loss of status even though their expertise remains essential.

> **HYPOTHETICAL**
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> A senior editor's role shifts from developing writers to correcting large volumes of generated text. The organization calls it advancement into oversight. The editor may experience less authorship, less mentoring, more repetition, and more responsibility for mistakes that began elsewhere.

The health concern is the combination of diminished meaning, uncertain competence, and constrained choice. It shouldn't be dismissed as resistance to innovation.

Research	What it found	What it can't tell us
Default-network research [12]	Medial prefrontal cortex and posterior cingulate form a core active during self-relevant, affective decisions; other components help build future scenes from memory.	Helps explain the functions behind "Who am I becoming?" It doesn't show a brain change caused by occupational disruption.
Self-esteem imaging study [13]	In 40 young adults, learning from approval and disapproval tracked activity in the ventral striatum and subgenual cingulate; updates in self-esteem tracked ventromedial prefrontal activity.	Research associations, not a biological formula for self-worth.

> **WHAT TO PROTECT**
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> - Specify which forms of expertise remain valuable, and reward judgment and mentoring.
> - Let experienced staff shape the new roles.
> - Avoid telling people their knowledge matters while measuring only machine-assisted throughput.

Resilience is easier to sustain when people can see continuity between what they've contributed and what they're asked to become.

6 When the System Is the Colleague, Someone Must Still Notice the Person

Many workplace relationships begin with practical exchanges: asking for help, discussing an uncertain case, explaining why an approach failed. AI can meet the immediate information need while removing the interaction through which trust would have developed.

> **HYPOTHETICAL**
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> A new employee asks a chatbot every question because it's always available and never impatient. That reduces embarrassment and speeds access to information. Months later, the employee may have few colleagues who know them well enough to notice distress, offer encouragement, or advocate for their development. The question is what replaces the human exchanges that no longer happen.

Research	What it found	What it can't tell us
Applied Psychology research program [8]	The same four studies connected greater interaction with AI at work to loneliness in the samples studied.	Results shouldn't be generalized to every form of AI use.
Social-support imaging study [14]	Sixteen married women facing the threat of electric shock held a husband's hand, a stranger's hand, or no hand. Spousal hand-holding attenuated threat-related activity, including in the right anterior insula, superior frontal gyrus, and hypothalamus, more so in happier marriages.	Small, narrow sample. It shows that support can change physiological responses, not just how people feel.
Customer-support field research [15]	Across 5,179 agents, an AI assistant raised issues resolved per hour by 14% on average, improved customer sentiment, and cut requests to speak to a manager by almost 25%.	It didn't measure brain health, though less antagonistic interactions are a plausible resource for well-being. An NBER working paper.

These findings make the design question concrete. Does AI help people interact more constructively, or does it remove supportive contact? Does it free time for mentoring, or make mentoring look unnecessary?

> **WHAT TO PROTECT**
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> - Meaningful collaboration: discussing hard cases, sharing uncertainty, learning from experienced colleagues.
> - Reliable access to a human supervisor. A social event can't make up for a process that leaves people isolated every day.

7 Trust Gets Expensive When Anything Might Be Fake

AI raises uncertainty about information at two levels. An authoritative-sounding output may be wrong. And an apparently authentic person or message may be fabricated.

Research	What it found	What it can't tell us
Arup deepfake fraud, early 2024 [16]	An employee was tricked into sending $25 million to criminals after a video call with deepfakes of senior management. Arup's chief information officer, Rob Greig, called it "technology-enhanced social engineering," said it "wasn't even a cyberattack in the purest sense," and noted that none of the firm's systems were compromised.	It exposes a weakness in ordinary cues of trust. It tells us nothing about the employee's mental health, and that shouldn't be invented.

The broader concern is what organizations ask of people afterward. "Be more vigilant" may be necessary, but it's an incomplete response if every familiar voice, message, and document becomes something an individual must authenticate alone.

> **IN THE BRAIN**
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> There's no isolated truth-detection center in the brain. Judging information takes attention, memory, knowledge, and judgment. The anterior insula and dorsal anterior cingulate, anchors of the salience network, help identify behaviorally relevant events and coordinate responses [17]. Prefrontal systems help hold the goal of checking a claim rather than acting at once. These are general functions; evidence that synthetic media produces lasting change in these regions isn't established. A plausible human cost is repeated uncertainty: the effort of checking, the fear of missing a deception, a reluctance to trust even legitimate requests. That deserves direct study, not talk of "rewiring" the brain.

WHAT TO PROTECT

- Confirmation procedures and known channels for consequential requests, with shared responsibility.
- Permission to pause without punishment for slowing a transaction. Trustworthy processes let people stay cautious without being permanently distrustful.

8 Assistance and Evaluation Feel Very Different

AI that helps with a task and AI that evaluates a person create different experiences. In customer service, one system may supply useful information during a call while another tracks tone, pacing, script adherence, or time between calls. An employee can appreciate the first and feel hemmed in by the second.

Research	What it found	What it can't tell us
Contact-center worker surveys [18]	Matched surveys fielded in December 2022–January 2023 (US N = 2,891). In the US, 67% agreed that AI-automated monitoring made work more stressful. Workers at high AI intensity were more likely to say they often felt emotionally depleted (59% vs. 43% with no AI) and less likely to have enough time between calls (14% vs. 33%).	Survey associations, not a randomized demonstration that AI caused the differences.
WHO guidance on mental health at work [19]	Lists excessive workloads or work pace, lack of control over job design or workload, and job insecurity among the risks to mental health at work.	It's more defensible to link AI monitoring to these established conditions than to claim that surveillance damages a named brain region.

HYPOTHETICAL

A call-center representative handles a distressed customer who needs extra explanation. Spending longer may lower the performance score. Following the score may conflict with serving the customer. The employee answers to the customer and to an automated evaluation that may not understand the situation, monitoring their own performance mid-call and unsure how deviations will be read.

Privacy matters because learning requires tentative thoughts and mistakes. If every question or draft may feed an employment judgment, people may stop asking for help just when organizations expect rapid learning.

WHAT TO PROTECT

- Understandable criteria and limits on data collection.
- Separation between learning and evaluation.
- Meaningful human review. An appeal counts only if someone has the authority to reconsider the automated conclusion.

PART III The Conditions for Human Resilience

9 Change Needs Time to Settle

Learning a new system takes more than attending a demonstration. People must find where it works, build routines, identify exceptions, and regain confidence in their performance. When another system arrives before that's finished, the cycle starts again.

HYPOTHETICAL

An operations team moves from one AI assistant to another, receives revised data-handling rules, then adopts automated agents that change who checks the work. Each change may be justified. Together they leave people unsure how to do ordinary tasks correctly.

Pace matters because familiarity normally reduces the effort needed for well-learned activities. Changing the rules over and over forces continued deliberate attention. People may check more, grow cautious, or disengage from training because they expect the current approach to be replaced. “Adaptation fatigue” describes that experience. It isn’t a neurological diagnosis.

Research	What it found	What it can’t tell us
Neural coping study [20]	Flexible coping with stress involved dynamic activity across several networks, with the ventromedial prefrontal cortex a key locus.	There’s no single resilience center that an employer can strengthen with a short training program.
Sustained-stress study [21]	Twenty healthy adults under a month of psychosocial stress showed impaired attentional control and disrupted frontoparietal connectivity. After a month of reduced stress, the differences were gone.	Not about AI, and no universal recovery timetable. It does show why reducing demands can matter alongside building coping skills.

WHAT TO PROTECT

- Manage the total volume of change, with supported learning periods and stable expectations.
- Retire old requirements explicitly. Adding a workflow while keeping every earlier obligation produces accumulation, not transition.
- Resilience needs enough stability to consolidate learning and enough recovery to meet the next challenge with capacity left.

10 The Same Tool Lands on Different Lives

AI-related demands fall on people with different resources. An employee with protected training time can experiment during the day. A contractor paid only for finished work absorbs the learning cost personally. A caregiver can’t necessarily stretch the evening. A person using assistive technology may gain independence from one AI feature and hit an accessibility barrier in another. Even within one occupation, starting expertise changes the experience.

Research	What it found	What it can’t tell us
Customer-support field research [15]	Gains concentrated among less experienced workers: a 34% improvement for novice and low-skilled agents, with minimal impact on experienced, highly skilled ones.	AI can distribute benefits unevenly. It doesn’t mean novices always gain or experts always lose.

HYPOTHETICAL

An organization offers an optional evening AI course and later rewards those who completed it. The course looks equally available. In practice, taking it depends on childcare, health, transportation, and unpaid time. A difference in resources gets mistaken for a difference in motivation.

The brain-health connection lies partly in the ability to meet demands and to recover from them. Financial security creates room to refuse excessive work or seek care. Predictable schedules make sleep and family duties

manageable. Accessible training reduces avoidable effort. None of this justifies stereotypes about age, disability, or cognitive ability; a demographic category can't tell a manager who will adapt to a specific tool.

WHAT TO PROTECT

- Paid learning time, multiple teaching formats, accessible interfaces, and room to practice.
- Support that doesn't require disclosing personal difficulty.
- Evaluation that separates unfamiliarity from inability, and lack of opportunity from lack of effort.

The question isn't only who receives access to AI. It's who receives the conditions to benefit from it without sacrificing health.

11 Nobody Adopts AI in an Empty Life

An AI rollout doesn't arrive in an otherwise empty life. The same employee may be managing a parent's illness, financial uncertainty, poor sleep, and a long commute, and may also face a restructuring unrelated to AI. The effect of a new technology depends on what it adds to that situation and what support it takes away. That makes simple explanations unreliable. An exhausted employee may not be struggling because of a tool alone. It would be just as wrong to dismiss the tool's contribution because other pressures exist.

Research	What it found	What it can't tell us
Allostatic-load review [5]	Allostatic load describes the "wear-and-tear" on body and brain under chronically stressful conditions. The hippocampus, amygdala, and prefrontal cortex are among the systems involved.	Much of the cellular-level evidence comes from animal research. It can't be used to diagnose an employee from their workload.
Danish labor-market study [22]	Linking adoption surveys to administrative records, employers absorbed AI mainly through task reorganization, including new AI oversight and integration duties, with no meaningful change in earnings or recorded hours (effects beyond 2% were ruled out).	It didn't measure brain health. It shows why unchanged hours can't be assumed to mean unchanged demands.

HYPOTHETICAL

A manager oversees fewer staff after a reorganization, checks more AI-generated work, and spends evenings caring for a relative. "Use AI more effectively" misses the actual problem: several responsibilities competing for the same limited time.

Organizations should assess combined workload, staffing, uncertainty, and support. People with persistent changes in concentration, memory, sleep, or mood deserve proper assessment, not a blanket message that they should simply adapt.

12 Seven Conditions Make Resilience Possible

A serious approach to resilience starts by asking what people are being required to withstand. Some challenge is constructive. Learning can be demanding and satisfying, and greater capability can build confidence. The aim is conditions in which challenge stays manageable and people can recover, develop competence, and keep agency. That calls for decisions at several levels.

#	Condition	What leaders do	What to watch
1	Measure the work that remains	Count checking, correction, coordination, exception handling, and learning. Ask employees where effort has moved.	Rework and review hours, not just first-draft speed
2	Decide how gains will be used	Decide in advance how much supports output, and how much supports quality, learning, recovery, or less overtime.	Rising expectations that absorb the whole benefit

#	Condition	What leaders do	What to watch
3	Preserve the development of expertise	Identify the skills needed to supervise automated systems and provide practice. Require explanations for consequential judgments. Build mentoring into the operating model.	Whether people can explain what they approve
4	Manage emotional demands	If automation takes the easy interactions, examine the difficulty of the cases left for humans, and adjust staffing, rotation, and recovery.	Shifts dominated by conflict or exceptions
5	Protect boundaries around learning and availability	Put training inside paid work. Be clear about what needs an immediate response and what can wait.	Silent expectations of continuous supervision
6	Give people meaningful influence	Consult before workflows and metrics are fixed. Give people ways to report poor recommendations, inaccessible features, and unrealistic targets.	Employees being labeled "resistant"
7	Preserve relationships and trustworthy procedures	Maintain human mentoring and support. Build verification into consequential transactions. Name who resolves uncertainty and who is responsible when the system fails.	Isolation and unclear ownership

These measures complement individual habits such as sleep, movement, social connection, and seeking care. They address the conditions that make those habits possible.

SIGNALS WORTH TRACKING

- Whether overtime is rising.
- Whether people understand the work they approve.
- Whether errors are being caught earlier.
- Whether employees feel able to challenge a system.
- Whether the pace of change is manageable.

Aggregate, privacy-respecting measures beat turning brain health into another form of individual surveillance.

The evidence doesn't support a universal story of AI harming workers. An OECD study of employers and workers in manufacturing and finance across seven countries found both groups generally very positive about AI's effect on performance and working conditions, with concerns about job loss, and found that training and worker consultation were associated with better outcomes for workers [23]. That variation is exactly why implementation deserves scrutiny.

A useful test of any AI transformation is whether people can finish work with attention left for their families, explain decisions made in their name, learn without giving up sleep, ask for help without fear, and trust the processes that evaluate them.

The human brain can learn and adapt. Adaptation depends on conditions. Attention, competence, relationships, agency, and recovery all need protection.

> *A transformation that raises output while steadily exhausting those capacities is drawing down the human resources its success depends on. A better one builds them as deliberately as it builds technology.*

REFERENCES

[1] Counts, L. "AI promised to free up workers' time. UC Berkeley Haas researchers found the opposite." Haas News, February 18, 2026 (research by X. M. Ye and A. Ranganathan). newsroom.haas.berkeley.edu

[2] Scolari, M., Seidl-Rathkopf, K. N., & Kastner, S. (2015). Functions of the human frontoparietal attention network: Evidence from neuroimaging. Current Opinion in Behavioral Sciences, 1, 32–39.

[3] Qin, S., Hermans, E. J., van Marle, H. J. F., Luo, J., & Fernández, G. (2009). Acute psychological stress reduces working memory-related activity in the dorsolateral prefrontal cortex. Biological Psychiatry.

[4] Harvard Business School Working Knowledge. "Humans vs. Machines: Untangling the Tasks AI Can and Can't Handle" (BCG consultant experiment). library.hbs.edu

[5] McEwen, B. S., & Gianaros, P. J. (2010). Central role of the brain in stress and adaptation: Links to socioeconomic status, health, and disease. Annals of the New York Academy of Sciences, 1186, 190–222.

[6] Anthropic. (January 29, 2026). AI assistance and coding skills [randomized study]. anthropic.com/research/AI-assistance-coding-skills

[7] Bastani, H., Bastani, O., Sungu, A., Ge, H., Kabakcı, Ö., & Mariman, R. (2025). Generative AI without guardrails can harm learning: Evidence from high school mathematics. PNAS, 122, e2422633122.

[8] Tang, J., Koopman, J., Mai, K. M., De Cremer, D., Reynders, P., Ng, C. T. S., Zhang, J. H., & Chen, I.-H. (2023). No person is an island: Unpacking the work and after-work consequences of interacting with artificial intelligence. Journal of Applied Psychology, 108(11), 1766–1789.

[9] Yoo, S.-S., Hu, P. T., Gujar, N., Jolesz, F. A., & Walker, M. P. (2007). A deficit in the ability to form new human memories without sleep. Nature Neuroscience.

[10] Yoo, S.-S., Gujar, N., Hu, P., Jolesz, F. A., & Walker, M. P. (2007). The human emotional brain without sleep—a prefrontal amygdala disconnect. Current Biology, 17(20).

[11] National Institute on Aging. Cognitive Health and Older Adults. nia.nih.gov

[12] Andrews-Hanna, J. R., Reidler, J. S., Sepulcre, J., Poulin, R., & Buckner, R. L. (2010). Functional-anatomic fractionation of the brain's default network. Neuron, 65(4), 550–562.

[13] Will, G.-J., Rutledge, R. B., Moutoussis, M., & Dolan, R. J. (2017). Neural and computational processes underlying dynamic changes in self-esteem. eLife, 6, e28098.

[14] Coan, J. A., Schaefer, H. S., & Davidson, R. J. (2006). Lending a hand: Social regulation of the neural response to threat. Psychological Science.

[15] Brynjolfsson, E., Li, D., & Raymond, L. (2023). Generative AI at work. NBER Working Paper 31161.

[16] World Economic Forum. Interview with Rob Greig, Chief Information Officer, Arup, on the 2024 deepfake fraud. weforum.org/stories/emerging-technologies/deepfake-ai-cybercrime-arup

[17] Seeley, W. W., Menon, V., Schatzberg, A. F., Keller, J., Glover, G. H., Kenna, H., Reiss, A. L., & Greicius, M. D. (2007). Dissociable intrinsic connectivity networks for salience processing and executive control. Journal of Neuroscience, 27(9).

[18] Doellgast, V., O'Brady, S., Kim, J., & Walters, D. (2023). AI in contact centers: Artificial intelligence and algorithmic management in frontline service workplaces. Cornell University ILR School.

[19] World Health Organization. Mental health at work (fact sheet). who.int

[20] Sinha, R., Lacadie, C. M., Constable, R. T., & Seo, D. (2016). Dynamic neural activity during stress signals resilient coping. PNAS, 113(31), 8837–8842.

[21] Liston, C., McEwen, B. S., & Casey, B. J. (2009). Psychosocial stress reversibly disrupts prefrontal processing and attentional control. PNAS, 106(3), 912–917.

[22] Humlum, A., & Vestergaard, E. (2025). Still waters, rapid currents: Early labor market transformation under generative AI. NBER Working Paper 33777.

[23] Broecke, S. (2023). The impact of AI on the workplace: Main findings from the OECD AI surveys of employers and workers. OECD Social, Employment and Migration Working Papers.

Scenarios labeled "hypothetical" are illustrations, not findings. Where a study measured performance, surveys, or laboratory responses instead of workplace brain health, the paper says so.

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