Science summit for the G7 2026

S7 Academies joint statement

Advancing Brain Health (including Mental Health) for Global Societal Resilience

Executive Summary

Advancing Brain Health (including Mental Health) for Global Societal Resilience

Healthy brains are essential to well-being, societal stability, and economic prosperity. Yet brain disorders, which now affect one in three people, are leading causes of disability and death worldwide and cost the global economy more than $5 trillion annually. Their burden rises rapidly with population ageing, environmental and social stressors, and a growing incidence of mental health challenges in younger people, with growing brain health inequalities. Breakthroughs in neuroscience, technology, and artificial intelligence (AI) are creating unprecedented opportunities for research and innovation into improved brain health. Major expected economic benefits from improved brain health encompass reduced disability-related costs, protected brain capital for education, productive employment, and innovation, and growth of a new business sector for brain healthcare technology and services. The G7 is uniquely placed to turn this momentum into a driver of global transformation in pursuit of sustainable development and societal resilience.

The S7 urges the G7 to consider the 6 recommendations, which are summarised below:

1. **Make brain health a cross-cutting priority** across G7 agendas.
2. **Establish a standing G7 Brain Health Advisory Council** to guide policy, track progress, identify opportunities, and ensure ethical oversight.
3. **Launch a G7 Program for Investment and Innovation in Brain Health** to mobilize private capital investment and lead ambitious international calls for collaboration, prioritizing cross border studies, data sharing and AI-driven data integration.
4. Promote a **holistic lifespan approach** to brain and mental health by championing **integrative policies** and **cross-disciplinary research** to advance prevention and care and by monitoring the impact of environmental and social transitions.
5. **Facilitate cross-border and cross-sectoral data sharing and lead an integrated brain research and innovation agenda**, including the best of AI and digital innovation, basic and translational science, molecular and precision medicine, with action on social, educational, and environmental determinants.
6. **Advance these efforts at the G7+ level**, as brain health is a fundamental human right and a major global social issue with macroeconomic consequences.

With coordinated leadership, sustained investment, and a commitment to equity and global justice, the G7 can transform brain health into a driver of well-being, isocietal stability and economic prosperity.

Statement

Advancing Brain Health (including Mental Health) for Global Societal Resilience

Brain health: a major global challenge of the 21st century

Brain health, including mental health, shapes who we are, how we experience the world, and how we contribute to society. Yet one in three people will experience a brain disease in their lifetime, the highest burden among non-communicable diseases[1–3]. Brain diseases are the second leading cause of death and the leading cause of disability worldwide, exceeding cancer and cardiovascular diseases in disability-adjusted life years. The human cost is profound, as is the economic one. According to the World Economic Forum, brain disorders are estimated to cost the global economy $5 trillion annually, a figure projected to rise to $16 trillion by 2030[4]. In light of this, current investments in brain research are disproportionately low.

Brain capital: a strategic imperative

Cognitive, emotional, and social capacities ("brain capital") are the engines of modern economies, as they shape workforce performance, innovation, and quality of life[5]. Prioritizing brain health can unlock these opportunities, estimated at more than $20 trillion, and be a major driver of social prosperity, economic growth and sustainable development[6] (*App. 1-4*). Indeed, brain health has been demonstrated to be one of the most cost-effective investments in public health, with particularly high returns for early life investments[7,8]. The potential for synergistic economic and societal benefits is huge, via: (i) reduced social and healthcare costs of brain health-related disability; (ii) increased cognitive capital for education and employment; and (iii) growth of a new business sector for brain healthcare diagnostics, prevention, therapeutics and services, which will generate new skilled jobs, intellectual property, and returns to public and private investors.

An intergenerational, global human and economic toll and the case for prevention

Ageing populations lead to a massive rise in brain diseases, especially stroke and neurodegenerative conditions. At the same time, neurodevelopmental and mental health conditions, such as autism spectrum disorders, major depression, and substance use disorders, including those caused by the opioid crisis, are surging among children and younger adults, and affect working-age populations at a scale that weakens social cohesion and threatens productivity. These challenges are global, as 82% of deaths and 85% of disability-adjusted life-years attributable to disorders of the nervous system occur in low- and middle-income countries[9]. And they are growing rapidly in response to the convergence of demographic shifts, social and environmental stressors (from social media and screen dependence to anthropogenic pollutants[81-83]), rapidly changing lifestyles, and widening social disjunctions that exacerbate inequalities and stigma. Although the toll is enormous, strong evidence shows that it is possible to prevent or delay the onset of many common brain diseases. It has been estimated that 35-75% of cases of stroke, dementia, and depression are preventable[10–12]. It is also possible to increase an individual's resilience[13], with protective measures starting in the prenatal period and early childhood, the most critical time for lifelong brain health[14–18]. Given the difficulty of reversing brain damage, or brain adaptation to aberrant environments, prevention is also more efficient and cost-effective than treatment of advanced disease.

Shifting paradigms: towards a holistic approach to brain health

There is an urgent need for global, coordinated action across neurological conditions (e.g., neurodegenerative diseases, stroke), mental and neurodevelopmental disorders (e.g., depression, autism spectrum disorders), and addictions such as substance use disorders, which share profound impacts on cognition, social inclusion, and well-being, and have overlapping genetic, epigenetic, and environmental risk factors[19–22] (*App. 5*). Some of these disorders occur together or are interdependent: depression[23,24], bipolar disorder[25,26], autism spectrum disorder[27], and schizophrenia[25,27], are, for instance, associated with increased risks for the development of dementia and Parkinson's disease[28].

Shared biological and psychosocial mechanisms of vulnerability, including inflammatory processes

and stress, can trigger and accelerate mental and neurological disorders[29,30], while shared neuroprotective pathways to resilience have also been suggested[31]. In addition, brain-body interactions (vascular, immune, metabolic), as well as sleep and circadian-rhythm regulation (*App. 5*), are major and often neglected determinants of brain health across mental and neurological traits. Life-course influences also play a critical role across the brain disease spectrum, including developmental factors from the prenatal period (with preterm births rising sharply) through early childhood and adolescence[12,32–34]. Modifiable factors broadly influencing brain health include vascular risk (e.g., uncontrolled hypertension), nutrition, physical activity, sensory deficits, social isolation, socioeconomic status and education[10–11,35,36]. Stigma associated with numerous brain disorders, can also be a barrier to early detection, treatment, and prevention, requiring culturally sensitive educational efforts[37,38].

Together, these interconnected biological, behavioral, and social determinants point to a convergence of influences across the life course, underscoring the need for a holistic and globally coordinated approach to brain health, essential for the development of effective preventions and therapies[3] and for strengthening the brain capital of societies.

A convergence of breakthroughs with the potential to transform brain health

In recent years, we have seen breakthroughs in neuroscience with rapid advances in molecular, imaging, and digital technologies, alongside major progress in AI and the analysis of large-scale population and clinical cohorts and databases. Together, these developments are creating unprecedented opportunities to understand, prevent, and treat brain diseases, while also promoting healthy brain development.

Novel high-throughput molecular approaches, including single-cell techniques, stem cell models, neuroimaging, neurophysiology and brain-computer interfaces, are revealing mechanisms of brain function and disease at unmatched depth and scale, with strong potential for accelerating therapeutic developments[39–42]. At the same time, the convergence of breakthroughs in genomic medicine with the advent of RNA/DNA-based therapies holds transformative possibilities for faster development of tailored treatments, including for currently intractable disorders[43], although their expected high costs raise challenges to equitable access, prompting exploration of new incentive models for pharmaceutical innovation. Epigenetic mechanisms further reveal how social, psychological, and environmental exposures, including prenatally, shape brain development, function, and disease risk, thereby informing prevention strategies[44]. In parallel, invasive and non-invasive neuromodulation approaches (including focused ultrasound, transcranial magnetic stimulation, brain-computer interfaces) are opening new avenues for targeted interventions[45–48].

To fully harness this momentum, stronger integration across academic research, industry, investors, and the public sector is essential[13]. Further, emerging efforts in precision brain health must be conducted on a global scale to ensure equitable access and avoid widening inequalities[49–53] and better account for gender specificities to address the brain health gap among women[54].

Harnessing AI and digital innovation for brain health

AI and data science have the potential to transform brain health by reshaping how we understand, diagnose, prevent, and treat brain diseases. This transformation has been accelerated by the convergence of advances in machine learning, the exponential growth of data generation, and rapidly increasing computing power. AI is already enabling powerful tools to chart brain growth and aging over the life cycle[55] and is poised to play a crucial role in redefining brain disorders by integrating biological markers with large-scale biomedical, psychological, and socioeconomic data[56], supporting more mechanistically grounded disease definitions. This is essential for accelerating drug discovery and enabling more precise preventive and therapeutic strategies. A clearer mechanistic understanding may also help reduce stigma by reinforcing that brain disorders are biologically grounded conditions[56]. Beyond this, AI-driven discovery of genomic regulatory mechanisms, as well as prediction of protein structure and function, is poised to further transform drug

development[57–62]. AI and data science approaches also enable the multimodal integration of diverse data sources and privacy-preserving sharing and analysis of data across borders and sectors through federated or swarm-learning approaches. When coupled with robust analytical methods and, where appropriate, multi-layer experimental models that enable causal and mechanistic inference, these approaches hold considerable promise for accelerating innovation in brain health.

In parallel, emerging neurotechnologies such as brain-computer interfaces are opening new frontiers for understanding and modulating brain function, while digital twins are advancing personalized treatment strategies[59,60]. Finally, closer integration of brain science with AI research can also uncover and translate principles of neural computation into AI systems that are more robust, energy-efficient, interpretable, and adaptive[61,62].

Ensuring ethical, legal and social accountability in brain innovation

Neuroethics[85,86] underscores the need to balance scientific innovation with respect for autonomy, privacy, and equity. As multimodal and cross-border data sharing expands to enable precision medicine/prevention for brain diseases, responsible governance is essential to uphold distributive justice and human rights. International oversight to enable secure, responsible data sharing, by informing policy and producing technical standards, is becoming increasingly important[63,64]. Neurorights have been proposed to address ethical challenges posed by neurotechnologies and AI-driven neural decoding, with their inclusion in international treaties now under consideration[65–68]. Realizing AI's global potential for brain health demands interdisciplinary, multistakeholder collaboration that addresses ethical, societal, and policy implications while ensuring trustworthiness[69]. International and interdisciplinary oversight will be crucial to translate these advances responsibly into societal benefit, in line with WHO, OECD, and UNESCO frameworks on ethics and governance of AI and neurotechnology[70–72]. Moreover, integrating perspectives from lived experience, e.g. through co-production with patients, will be essential to enhance the impact of new therapies, preventive strategies, and evidence-based policies[73].

A scientific mandate for action

The S7 has a unique responsibility to provide evidence-based recommendations to address the global brain health crisis and harness this unprecedented scientific momentum.

While global organizations such as WHO[74] have recently recognized brain health as a public health priority, and many countries are adopting national brain health plans (*App. 6-7*), there is an urgent need for strategic and coordinated action by the G7. In 2016, for the Ise-Shima G7 Summit, the G-Science Academies issued a visionary statement (*App. 8*) positioning brain health as a global priority. A decade later, it is timely to translate this vision into collective action.

The S7 urges the G7 to consider the 6 recommendations below:

1. **Adopt brain health as a cross-cutting priority**
   Tackling the major societal challenge of brain health demands a global, intersectoral approach, one that the G7 is uniquely positioned to lead and that includes transformative solutions for the prevention and treatment of brain diseases, as well as measures to strengthen the brain capital of our societies. Given the immense and growing societal and economic burden of brain disorders, neurological and mental, including substance use disorders, affecting one in three people and costing the global economy $5 trillion annually, **brain health should be embedded across G7 policy domains**, from health and education to research, innovation and economic growth, by framing a unified mission.

2. **Establish a standing G7 Brain Health Advisory Council**
   We propose the establishment of a **high-level G7 Brain Health Advisory Council** to spearhead a bold strategic initiative for the coming decade, placing **interdisciplinary science and intersectoral dialogue** at its core. The Council would provide guidance on and monitor brain health policies, identify emerging innovation opportunities and investment priorities, and ensure accountability alongside robust ethical oversight. Drawing on a strong evidence base[10-12], and aligned with Actions 3-6, the Council could champion scalable prevention strategies targeting modifiable risk factors for common brain diseases[10-12], including early adverse experiences through strategies that increase resilience[75-77].

3. **Launch a G7 Call to Investment and Innovation in brain health**
   Capitalizing on the convergence of scientific and technological breakthroughs, the G7 could establish a **Brain Health Investment and Innovation Initiative** to mobilize public resources and private capital. By catalyzing investment and **leading ambitious international calls for proposals**, prioritizing data sharing and AI-driven data integration, the G7 could accelerate scientific and clinical breakthroughs while generating both health and economic returns, and fostering the emergence of new companies and services in this rapidly growing sector. As part of this initiative, the G7 could also promote science-based regulatory and diagnostic reforms aligned with the latest standards for developing and licensing of novel therapeutic approaches, thereby improving the efficiency and impact of investment. This initiative would foster large-scale cooperation across academia, industry, philanthropy, and international organizations, and accelerate drug and biomarker development, as well as preventive and targeted behavioral interventions.

4. **Promote a holistic lifespan approach to brain and mental health**
   There is an urgent need for **unified global action** across mental and neurological disorders, which share biological (including genetic), environmental, and social determinants, and for understanding and addressing these **across the entire lifespan**[78-79]. The G7 Brain Health Advisory Council could continuously monitor the impact of these determinants across disorders and across borders, especially in light of environmental and social transitions, and would promote **integrative policies and cross-disciplinary research** on brain health. This would advance prevention and care, support healthy early brain development, reduce stigma, and foster innovation.

5. **Facilitate cross-border and cross-sectoral data sharing and lead an integrated brain research and innovation agenda**
   Strengthening brain resilience requires faster discovery and implementation of disease modifying therapies and biomarkers, and better targeting of biological, social, and environmental risk and resilience factors. The **G7 is uniquely positioned to lead an integrated research agenda** that unites brain science, molecular and precision medicine with social, educational, and environmental determinants of brain health, powered by AI approaches. Progress in neuroscience, technology, and AI has the potential to transform the prevention and treatment of brain disorders, but only if supported by **coordinated investment in diverse cohorts, robust genomics and data infrastructures, and secure, privacy-preserving data sharing across borders and sectors**.

Recommendations

6. **Embrace a global approach to address the brain health challenge**
   Societal challenges related to brain health are particularly prominent in low- and middle-income countries, thus significantly contributing to global macroeconomic imbalances. Moreover, assessing determinants of brain health across diverse ancestry, socio-economic, and environmental settings can significantly accelerate innovation and enable a more equitable translation of scientific breakthroughs. It is therefore essential to **extend efforts to a G7+ level**, in line with France's G7 presidency framed around addressing **major global imbalances**. Partnership opportunities with major international brain health initiatives beyond the G7 could also be pursued.

Brain health is a scientific imperative, a fundamental human right[80] and a core economic and social priority. By implementing a robust framework for action on brain health, G7 leaders can enhance global prosperity, delivering economic benefits in the short to medium term through reduced health and care costs associated with brain aging, as well as through the growth of new businesses in the brain health sector. In the longer term, acting now to protect the health of the developing brain in children and young people will leave a legacy of enhanced cognitive capital, strengthening societal resilience and productivity of future generations.

Acronyms

AI : Artificial Intelligence

DNA : Deoxyribonucleic Acid

OECD : Organisation for Economic Co-operation and Development

RNA : Ribonucleic Acid

UNESCO : United Nations Educational, Scientific and Cultural Organization

WHO : World Health Organization

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Appendice (embedded below)

Appendix 1: Brain Health Emerges As Top Priority At Davos
https://www.forbes.com/sites/tarungalagali/2025/01/23/brain-health-emerges-as-top-priority-at-davos/

Appendix 2: Integral brain health_ The unifying goal for health, productivity and well-being - The Global Governance Project
https://www.globalgovernancemedia.org/integral-brain-health-the-unifying-goal-for-health-productivity-and-well-being/#:~:text=We%20propose%20this%20definition%3A%20%E2%80%98When%20thinking%2C%20feeling%20and,the%20determinants%20of%20brain%2C%20mental%20and%20social%20health

Appendix 3: SDGs-and-Brain-Health
https://www.thelancet.com/journals/laneur/article/PIIS1474-4422(23)00337-X/fulltext

Appendix 4: Unlocking the Potential of Brain Capital_McKinsey
https://www.weforum.org/stories/2024/09/brain-gain-how-improving-brain-health-benefits-the-economy/#:~:text=Policies%20and%20investments%20that%20empower%20better%20cognitive%20function,create%20a%20more%20resilient%2C%20adaptable%20and%20engaged%20population

Appendix 5: Detailed scientific background on "Shifting paradigms: towards a holistic approach"
There is an urgent need for global, coordinated action across mental disorders (autism spectrum disorders, depression) and neurological conditions (neurodegenerative diseases, stroke), which share profound impacts on cognition, social inclusion, and well-being, and have overlapping genetic, epigenetic, and environmental risk factors[s1-s3] - for example, the effects of high-risk genomic variants at the TSC1/2 and MECP2 genes, or the chromosome 22q11.2 deletion, encompassing neurodevelopmental, neurodegenerative, and psychiatric traits.
Relation between brain health and sleep and circadian-rhythm regulation
Sleep and circadian-rhythm regulation play major roles in brain-body interactions[s4,s5], and sleep disturbances represent a common, cross-cutting symptom across neurodevelopmental, psychiatric, neurodegenerative, and cerebrovascular disorders. They serve as important objective biomarkers for the detection of risks of onset, relapse, and recurrence, and function as early warning indicators[s6-s8]. Further, sleep disturbances are increasingly recognized as significant factors that can accelerate disease progression itself[s9,s10]. Therefore, we would welcome the inclusion in this statement of the need to strategically incorporate assessment systems and interventional research focused on sleep and circadian-rhythm abnormalities into the broader framework of developing disease-progression biomarkers and therapeutics, as a core lever to strengthen brain resilience.

Appendix 6: The Bern Declaration on Brain Health: a decalogue to launch an international alliance
https://pubmed.ncbi.nlm.nih.gov/40818468/

Appendix 7: Towards an EU Coordination Plan for the Brain
https://health.ec.europa.eu/document/download/53e9e9b7-d489-4b4a-b26e-37f37ad52bc8_en?filename=policy_20241126_co04_en.pdf

Appendix 8: G7 Brain Sciences, 2016
https://royalsociety.org/-/media/about-us/international/g-science-statements/2016-understanding-protecting-developing-global-brain-resources.pdf

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Mamoru MITSUISHI

Roberto ANTONELLI

Françoise BAYLIS

Françoise COMBES

JAPAN
Science Council of Japan

ITALY
Accademia Nazionale dei Lincei

CANADA
Royal Society of Canada

FRANCE
Académie des sciences

Marcia McNUTT

Paul NURSE

Bettina ROCKENBACH

UNITED STATES
National Academy of Sciences

UNITED KINGDOM
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German National Academy of Sciences Leopoldina