



Brain  
Capital  
Alliance



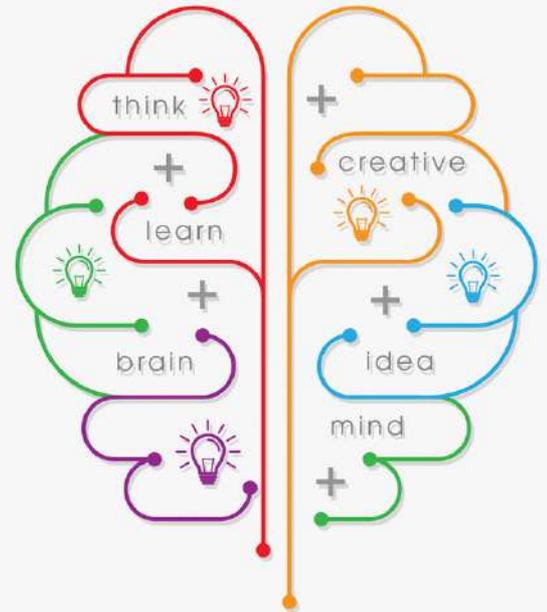
Neuroscience-inspired  
Policy Initiative (NIPi)  
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EMEA WEBINARS

## REPORT LAUNCH:

# GOOD FOOD IS VITAL FOR BRAIN SO WE MUST CHANGE THE FOOD INDUSTRY

**Thursday 18 May 2023 - 9:00 AM CET**



## Background

The collective healthy brain functioning of society is dependent on many factors. Policy makers must consider these factors because the mental and neurological well-being of a country or region is crucial for optimal social and economic conditions. However, the way in which many of our policy and market systems are designed, both globally and at a local level, fails to produce brain healthy environments. One prominent example of this structural failure is the corporate industrial food system. Ultra processed foods and supplements are pervasive in the modern diet. Scientific evidence shows that whole foods and a healthy diet are not only important for people's physical health, but also for one's mental and neurological health.

On the 18th of May, 2023, the Euro-Mediterranean Economists Association (EMEA) held [a webinar](#) to launch the report, "[Good Food is Vital for Brain Health So We Must Change the Food Industry](#)" published by the Baker Institute of Public Policy at Rice University. This event brought together a group of multidisciplinary experts to present the main conclusions of the study and novel policy solutions from the fields of neuroscience, public health, nutritional psychiatry, economics, and public policy. Partners of the event included the Brain Capital Alliance, the Food

and Mood Center at Deakin University, the Baker Institute of Public Policy at Rice University, and the OECD Neuroscience Inspired Policy Initiative.

### Summary of the Discussion

The moderator of the session, Prof. Rym Ayadi, the President and Founder of EMEA and co-founder of the Brain Capital Alliance, opened the event by noting that food, nutrition, and food security are integral to boosting brain health. Prof. Ayadi observed that the discussions around food systems historically centred around quantity and deprivation whereas now there is more dialogue regarding the quality of food. There is now a need for policy and action to address the amount of heavily processed food being pushed into our diets by profit seeking food companies that is detrimental to brain health.

Prof. Ayadi then introduced the three speakers of the webinar:

- Dr. Harris Eyre, MD PhD, Fellow in Brain Health at Rice University's Baker Institute for Public Policy, Senior Fellow for Brain Capital with the Meadows Mental Health Policy Institute, Advisor to EMEA and Adjunct Associate Professor with IMPACT at Deakin University
- Prof. Felice Jacka OAM, Co-Director of the Food & Mood Center at Deakin University
- Prof. Suzanne L Dickson, President of the European Brain Council, Secretary of the European College of Neuropsychopharmacology, Professor of Physiology/Neuroendocrinology at the University of Gothenburg, Sweden

As well as the three discussants:

- Prof. Michael Berk MD PhD, Director of IMPACT, the Institute for Mental Health and Physical Health and Clinical Translation, at Deakin University
- Prof. Mohamed Salama, Associate Professor, Institute of Global Health and Human Ecology, the American University in Cairo, Egypt and Senior Atlantic Fellow at the Global Brain Health Institute

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- William Hynes, Coordinator of New Approaches to Economic Challenges, Office of the Chief Economist, OECD and co-lead of the OECD Neuroscience-inspired Policy Initiative

Dr. Harris Eyre opened with a presentation on why optimising food and nutrition is key to building global brain capital and also for our economies and societies. Brain capital is a complex capital stock derived from the accumulation of brain skills and brain health that may be impeded or boosted by different drivers throughout the lifecycle. Brain capital is a topical concept because the global community is currently facing a wide array of brain challenges. On one hand, there are clinical challenges such as anxiety, depression, and Alzheimer's disease that are costing trillions to the global economy. On the other, there are non-clinical challenges that negatively impact the brain such as ultra processed foods, poor diet, toxins in food in packaging (e.g. microplastics), air pollution, and climate extremes. Brain capital provides the framework for a coordinated approach for tackling both clinical and non-clinical brain challenges.

Dr. Eyre reminded the group that the food system does not impact the brain solely through negative diets, but also through how it is driving climate change. Deforestation, farming techniques such as tilling, carbon intensive transport, poor waste management, and the use of plastic in processing and packaging are all significantly contributing to environmental degradation. Rethinking the structure of the industrial food system is therefore doubly important for preserving the collective brain health so vital to our economies. The Financial Times and the World Health Organization have articulated that brain capital will be essential for the resilience of the economic system in the face of modern societal challenges. As a result, Dr. Eyre offered the following policy recommendations for reforming the food system in the interest of building more brain healthy environments:

1. Target ultra processed foods in dietary guidelines.
2. Restrict the advertising of junk food, especially on children's TV channels.
3. Develop food assistance programs that promote diets rich in unprocessed and minimally processed foods.
4. Require front-of-package labelling with warnings regarding the health implications of ultra processed foods.

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5. Implement zoning to limit the number of fast food outlets around medical and educational institutions.
6. Prioritise policies and subsidies that improve biodiversity, soil health, and regenerative farming techniques.

The following presentation was delivered by Prof. Felice Jacka who continued the discussion on the necessity of improving the food environment to protect brain capital. Prof. Jacka is an expert in the field of nutritional psychiatry which examines the link between nutrition and what we eat with our mental and neurological health.

Addressing the intersection between food and the brain is important for several reasons. Principally, poor diet as well as mental and neurological disorders are among the leading contributors to the global disease burden. As a result, any intervention regarding either issue will have a marked effect on the health and wellbeing of the global population. Moreover, there is strong evidence that the two topics are linked. Diet is a key modifiable risk factor for treating and preventing mental and neurological health issues. Dr. Jacka presented evidence of this phenomenon from several studies that demonstrated the link between maternal diet and emotional health, ADHD symptoms, and developmental outcomes of children. Other contributing factors to mental and brain disorders, such as genetics or trauma, pose a much larger challenge for policymakers and health care professionals to tackle. Therefore, improving diet may act as a highly cost effective strategy for treating depression and other clinical brain challenges.

Unfortunately, prescribing a healthy diet is not necessarily simple from a policy or medical standpoint, especially at scale. The modern industrial food environment is centred around the consumption of ultra processed foods. For example, on average in the United States, 60 percent of a person's daily energy intake comes from ultra processed foods ([Steele et al., 2016](#)). Additionally, it is difficult for consumers to get accurate information about the nutritional value of their food. Advertising and branding tout the benefits of 'added nutrients' when in reality the process by which the industry is generating ultra processed food is detrimental to the health of both humans and the environment.

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A scientific group from the UN Food Systems Summit produced an estimate of 'true' cost and price of food for the global community. They concluded that the industrial food system generates a cost of 20 trillion U.S. dollars each year ([Hendriks et al., 2021](#)). Seven trillion of this estimate is attributable to environmental costs. Eleven trillion of the costs are derived from the health impacts of the food we are consuming. Prof. Jacka noted that in practice this cost is likely even higher since the estimates did not include the impact on mental health. It is evident that these costs are not being represented in the price of food nor the mainstream messaging from the industry.

At the Food for Mood Centre, Prof. Jacka is engaged in work connecting nutrition and mental and brain health that spans from basic science and mechanisms to large scale effectiveness trials and public health, education, and training. The team at the Food for Mood Centre have made great progress towards bringing evidence into the discussion around nutrition and mental and neurological wellbeing within the public sphere. In closing, Prof. Jacka reminded the group that everyone eats, everyone has a brain, so this topic is relevant to everyone across the globe. It is consequently important to have the public involved in directing the dialogue towards policy action and reform of the industrial food system.

In the final presentation, Prof. Dickson further emphasised the necessity of bringing nutrition into the brain space, in particular for policy, advocacy, and future scientific investigation. In Europe alone, 165 million people are currently living with a brain disease. Estimates from health economists project that approximately 800 billion euros (i.e. 45 percent of the annual health budget in Europe) are allocated to treating brain disorders in Europe each year ([Wittchen et al., 2011](#) in [Di Luca et al., 2019](#)). As stated by Prof. Jacka, poor diet is the main modifiable risk factor for brain disorders. Therefore, intervention in the realm of diet and nutrition should be a collective goal for governments, investors, the food industry, and society at large.

Prof. Dickson shared evidence from several key studies of the food impact on brain health as summarised in [Adan et al. \(2022\)](#). For example, [Jacka et al. \(2017\)](#) found that improved nutrition delays the onset of Alzheimer's disease and improves symptoms of depression. Additionally, [Li et al.](#)

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(2019) found that increasing intake of folic acid during pregnancy decreases the risk of offspring developing autism and [Sonuga-Barke et al. \(2013\)](#) demonstrated that the elimination of food additives reduces symptoms of ADHD.

Though much progress has been made within this field of study, Prof. Dickson warned that there are still issues to be tackled when gathering evidence of the impact of food on brain health. From a scientific perspective, it is difficult to disentangle the effects of different components of food. Vitamins are easy to detect because they are potent, but other important things to study such as nutrients, micronutrients, and pollutants may have a more subtle impact. Additionally, when engaging people in studies of diet, there are often issues with getting participants to report correctly. When it comes to analysing the results of these studies, it can be challenging to draw conclusions because individuals respond differently to diets and there are other confounding factors, such as lifestyle and exercise routines.

From a regulatory perspective, the field of nutrition also poses a unique set of challenges. Prof. Dickson raised the point that nutrients are not drugs. Nutrients act via different mechanisms than drugs and cannot be commercially protected. Practices that are standard in the pharmaceutical industry, such as randomised controlled trials, do not always work in the study of nutrition. Based on conversations with leaders in the food industry, Prof. Dickson learned that business models for food are very different from that in the pharmaceutical sector. Principally, it is more difficult to generate returns on investment in the food industry and the marketing strategy has a different focus. When it comes to food, doctors are not prescribing it and particular nutrients cannot be protected with patents, so having an attractive product is necessary for commercial viability. However, similar to the pharmaceutical industry, the assessment of safety of food products is incredibly important, so dedicating effort to studying the effect of nutrients and improving regulatory frameworks is essential. In addition to regulation, the results of these investigations need to be disseminated to the public so that citizens of Europe and beyond can make more informed decisions about their diet.

After the presentations, the three discussants offered their thoughts on the topics covered.

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Prof. Berk emphasised that in the mental health sector, there is an urgent need to focus on the plastic and addressable determinants of health and mental health. Nutrition influences almost every noncommunicable risk factor in the global burden of disease but is also one of the primary modifiable determinants of health. Prof. Berk also observed that in the past decades there has been an 'explosion' in the incidence of noncommunicable diseases, such as diabetes, allergies, and mental health issues, that may be attributed to massive changes in the global food environment. While scientists and public health experts are already working on this, engagement from economics and stakeholders in public policy and international organisations will be critical in driving the necessary reform to the food industry.

Prof. Salama spoke on the importance of a holistic approach to the relationship between food and brain health. Within the scientific community, it is known that brain functioning is connected to other parts of the body, such as the gut. There are even investigations about some mental and neurological disorders, for example Parkinson's disease, starting in the stomach. Food, nutrition, and mental and neurological health are also linked to several social and economic phenomena. Socioeconomic status may dictate decision making when it comes to diet. Namely, people may be making choices around food based on cost rather than nutritional value which may lead to greater consumption of ultra processed foods. Education may also create disparities in awareness regarding the value of food for brain health.

Prof. Ayadi added here that a low cost diet is not necessarily a low nutrient diet. In many Arab and African countries, traditional agricultural practices have preserved a less processed and more nutritious diet. Prof. Ayadi stated that it is important to take this into consideration when measuring and fostering regional integration and development.

Mr. Hynes observed that many of the issues mentioned around nutrition and brain health are symptoms of how we design, manage, and operate our socioeconomic systems. Europe is slowly learning that cheap products are often not actually cheap. Reliance on natural gas from Russia, product and value chains from China, and security from the USA are producing notable negative externalities and internalities for

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environmental health and security at the individual and collective level. It is becoming apparent as well that cheap food isn't actually cheap when you look at the dramatic impact on the mental, physical, and neurological health of the global population.

Optimising complex food systems and implementing solutions is a difficult task that can have many potential unintended consequences. In economic terms, if we consider these health issues from the food system a market failure, there are a number of options for how governments can make corrections. Unfortunately, staging interventions on health related issues is not always simple. Mr. Hynes gave the example of taxing cigarettes where it was found that in response to a tax increase, smokers were compensating by extracting more nicotine per cigarette. This illustrates how incentives and outcomes must be carefully considered when correcting health related market failures. In addition to behaviour changes, there is always a risk that an intervention may end up being regressive, meaning a great burden of cost is placed on lower income individuals and more vulnerable populations.

To close the session, Prof. Ayadi asked the speakers to share their thoughts about how we can move forward and whether it is feasible to have an integrated global approach based on the multipolarity and societal challenges we are currently facing. Prof. Dickson stated that the challenge to making this a global approach is securing the involvement of all the key actors and finding solutions at such a large scale. It is worth the effort, however, because there is a need for integration on many issues such as the environment and other factors that extend beyond nutrition and the brain. Dr. Eyre stressed the need for more engagement around nutrition, food, and the brain in policy circles. Creating a global network to address these factors would help push these ideas into important policy outlets, for example the upcoming COP28. For global change, Dr. Jacka highlighted the industrial food industry as the key target. There is a big issue with how companies are permitted to advertise the nutritional value of their products. Studies have shown that ultra processed foods with added nutrients and whole foods that technically have the same nutrient levels have completely disparate health effects. Therefore, studying how individual nutrients impact brain health is not necessarily an effective tool compared to rethinking how we regulate the nutritional value of food.

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Prof. Ayadi concluded that connection and collaboration will be the key to achieving these reforms. The merging of minds for this webinar and this report already demonstrates the ideas and actions that may be drawn from working together across sectors and disciplines.

View the recording of the webinar session [here](#).

Read the report, "Good Food is Vital for Brain Health So We Must Change the Food Industry," [here](#).

### Speaker biographies

#### Moderator:



#### **Prof. Rym Ayadi**

President and Founder, Euro-Mediterranean Economists Association

Professor Rym Ayadi is the Founder and President of the Euro-Mediterranean Economists Association (EMEA). She is Founder and Director of the Euro-Mediterranean and African Network for Economic Studies (EMANES). She is Senior Advisor at the Centre for European Policy Studies (CEPS); Professor at the Bayes Business School, City University of London; and Member of the Centre for Banking Research (CBR); Academic member and Chair (2018-present) of the European Banking Authority – Banking Stakeholders Group (EBA- BSG). She is also Associated Scholar at the Centre for Relationship Banking and Economics (CERBE) at LUMSA University in Rome.

**Speakers:**



**Dr. Harris Eyre**

PhD, Fellow in Brain Health at Rice University's Baker Institute for Public Policy and Senior Fellow for Brain Capital with the Meadows Mental Health Policy Institute

Originally from rural Australia, Harris Eyre MD PhD is a global physician-executive and neuroscientist focused on advancing the field of brain capital. He is lead of the Brain Capital Alliance and co-lead of the OECD Neuroscience-inspired Policy Initiative. He is Fellow with the Baker Institute for Public Policy and Senior Fellow with the Meadows Mental Health Policy Initiative. He has provided senior executive services to dozens of brain technology start-ups. He has published papers journals such as Neuron and Chief Finance International. He is an advisor the Euro-Mediterranean Economists Association and the Texas Medical Center Innovation Institute. Harris maintains adjunct roles with the Global Brain Health Institute, Baylor College of Medicine, Deakin University, the Latin American Brain Health Institute and the University of Texas Health Sciences Center at Houston.



**Prof. Felice Jacka**

Co-Director of the Food & Mood Center

Felice Jacka OAM is Alfred Deakin Professor of Nutritional Psychiatry and Co-Director of the Food & Mood Centre at Deakin University, and founder of the International Society for Nutritional Psychiatry Research. She is an ISI Highly Cited Researcher (2020-2022), putting her in the top 0.1% of publishing scientists worldwide for impact. In 2021 she was awarded a Medal of

the Order of Australia (OAM) for her services to Nutritional Psychiatry. She has written two books for commercial publication, including the very popular children's book "There's a Zoo in my Poo".



**Prof. Suzanne Dickson**

President, European Brain Council

Suzanne L Dickson is a neurobiologist and Professor of Neuroendocrinology at the University of Gothenburg. She graduated from the University of Edinburgh with a B.Sc. (honours) in Pharmacology and with a Ph.D. in Neuroendocrinology from the University of Cambridge in 1993, where she later became Senior Lecturer in Physiology. She is a leading figure in neuroendocrinology and works within many European Union and international organisations and societies to promote research, facilitate grant funding and training of Early Career Scientists. She is President of the European Brain Council, Secretary and Executive Board member of the European College for Neuropsychopharmacology, and also chairs ECNP's Workshop for Early Career Scientists in Europe. She also is founder and co-chair of ECNP's nutrition network and EBRA's BRAINFOOD cluster.

**Discussants:**



**Prof. Michael Berk**

Director IMPACT Institute, Deakin University, Australia

Professor Michael Berk is currently a NHMRC Senior Principal research Fellow and is Alfred Deakin Chair of Psychiatry at Deakin University and Barwon Health, where he heads the Institute for Innovation in Mental and Physical Health and Clinical Translation (IMPACT). He also is an Honorary Professorial Research fellow in the Department of Psychiatry, the Florey Institute for Neuroscience and Mental Health and Orygen Youth Health at Melbourne University, as well as in the School of Public Health and Preventive Medicine at Monash University. He has published over 1400 papers and is listed by Thompson Reuters ISI as highly cited (2015-2022). He has been awarded over \$144M in grant funding. His major interests are in the discovery and implementation of novel therapies.



**Prof. Mohamed Salama**

Global Fellow for the Global Brain Health Institute

Mohamed is an associate professor at the Institute of Global Health and Human Ecology, the American University in Cairo, Egypt. He is leading the Egyptian Longitudinal Study of Aging to try to reshape the current understanding of aging. Mohamed obtained his medical degree in 1999 from Mansoura University, Egypt where he began his clinical training. He received his MSc in Toxicology in 2006 and through a DAAD scholarship his PhD degree in Neurotoxicology in 2011 through collaboration with Philipps University in Marburg, Germany. Currently, he is working as an associate professor at American University in Cairo.



**William Hynes**

Co-ordinator of New Approaches to Economic Challenges, Office of the Chief Economist, OECD

William Hynes is a Senior Advisor to the Secretary General and the Head of the New Approaches to Economic Challenges (NAEC) Unit which provides a space to question traditional economic ideas and offer new economic narratives, new tools, methods and policy approaches.

He previously worked as a Senior Economist at NAEC, Advisor in the Sherpa and Global Governance Unit, a policy analyst in the Development Co-operation Directorate and an economic affairs officer at the World Trade Organisation.

William is an Associate Fellow and Adjunct Professor in International Economics at the Johns Hopkins University School of Advanced International Studies, has a doctorate from Oxford University and was a Marie Curie Fellow at the London School of Economics.

**Report author:** Elena Stotts-Lee

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