

Bristol Neuroscience Newsletter

2022: Issue 2

New Memory Hub Lead



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The Bristol Neuroscience Research Network (BN) is one of three multidisciplinary clinical-academic [Research Networks](#) supported by the [Elizabeth Blackwell Institute for Health Research](#) (EBI). Established in 2003, BN constantly evolves in response to the changing needs and developments of the neuroscience community it serves, which spreads across all faculties of the University of Bristol as well as both Bristol NHS Trusts and beyond.

The Network is organised as five Research Hubs: [Memory](#), [Mental Health](#), [Movement](#), [Neural Computation](#) and [Sleep](#), each of which is led by an academic Hub Lead. Each Hub is supported by a steering group with a

cross-section of members and includes representation from PhD students to Principal Investigators.

We are delighted to welcome Dr Emma Cahill (pictured), Lecturer



in the School of Physiology, Pharmacology and Neuroscience (PPN) as **the newly appointed Lead for the Memory Hub**.

Emma's research explores unanswered fundamental questions related to understanding

the physiological basis of memory and adaptive behaviour, drawing on the influence of psychological models. She and her team also investigate the relationship of fear and anxiety, and whether the two emotional states may be supported by neurochemically and anatomically distinct mechanisms. This is important to consider given that many psychiatric disorders are characterised by symptoms related to anxiety and therapeutic options are currently limited.

Emma takes over the role from Prof Jack Mellor (PPN) who stepped down in May 2022, having completed his three-year term of office, and to whom we extend our thanks.

EVENTS

Word-Object Learning via Visual Exploration in Space (WOLVES): A Neural Process Model of Cross-Situational Word Learning

17 June 2022, 15.00 - 16.00, John Spencer (Professor of Psychology, University of East Anglia), venue TBC

Balancing research and clinical commitments

21 June 2022, 13.00 - 14.00, Ema Swingwood (NIHR Clinical Doctoral Research Fellow and Respiratory Physiotherapist), online

BNSSG CCG Research Showcase Seminars

22 June 2022, 10.00 - 11.00, online

Bristol Cats Study meeting

22 June 2022, 10.30 - 12.00, online

Managing Imposter Syndrome in Academic-Policy Engagement

22 June 2022, 12.30 - 13.30, Dr Camila Devis-Rozental, online

Black In Neuro: Challenges in research and medicine

22 June 2022, 14.00 - 15.00, Dr Thiago Arzua (Columbia University), online

New Perspectives on Declarative Memory

23 - 24 June 2022, University of East Anglia and online

It takes a village: research showcase event

24 June 2022, 11.00 - 16.00, The Hawthorns, 14-16 Woodland Road, Bristol BS8 1UQ

The Brain Conference: Genetics and mechanisms of complex disorders: highlighting migraine

26 - 29 June 2022, Rungstedgaard, Hovedgaden, Hørsholm, Denmark

Festival of Enterprise

27 June 2022, 9.00 - 16.00, Wills Memorial Building, Queens Road, Bristol BS8 1QE

Living systematic reviews: Preventing obesity in children systematic review

28 June 2022, 13.00 - 14.00, Lena Schmidt and Francesca Spiga (University of Bristol), online

South West Fly meeting

29 June 2022, 13.30 - 17.30, Aims 2A/B, Biomedical Sciences building, University Walk, Bristol

Mental Health in Academia – Status-quo and Practical Implications for Early Career Researchers' Wellbeing

29 June 2022, 14.00 - 15.00, Katharina Bögl & Sandra Naumann (Scholar Minds), online

Combatting the Weaponization of Science by Right-Wing Extremists

29 June 2022, 15.00 - 16.00, Dr Jedidiah Carlson (TwinStrand Biosciences), online

FULL EVENTS LISTINGS ARE AVAILABLE ON THE [BN WEBSITE](#)

NEWS

Launch of BN's Strategy

Bristol Neuroscience are delighted to launch our latest research strategy, ***Brain Research for Better Lives***.

Our mission:

- To sustain and promote innovative, collaborative and interdisciplinary neuroscience research
- To embrace diverse perspectives and foster our supportive culture of reproducible, inclusive and open neuroscience
- To train and mentor next-generation team neuroscientists, fluent in multiscale methods and working fluidly across academia and the NHS
- To focus and accelerate translation through joint working with our network of industrial partners
- To continue excellence in public engagement through education and open exchange

Our vision:

- To become a national flagship, serving the nation and the world by advancing understanding of brain mechanisms and functions
- To lead open translation of frontier neuroscience into innovative treatments for central nervous system disorders and optimised brain health in society

Our current objectives include:

- 1) To address major challenges in the fields of Mental Health, Memory, Movement, Sleep & Neural Computation
- 2) Consolidate our 'synapse to society' remit, mapping from synaptic-resolution studies in theoretical models, cells and animals to population neuroscience studies in humans
- 3) Liaise with all UoB Faculties, Schools and affiliated NHS Trusts to help retain and recruit talented neuroscientists
- 4) Flag and support funding opportunities, offering feedback at all stages and levels of grant and fellowship application, with particular focus on supporting ECRs
- 5) Coordinate a vibrant and inspiring portfolio of seminars and workshops
- 6) Develop a framework for open and comprehensive sharing of neuroscience data
- 7) Consolidate a sustainable funding model for the Bristol Neuroscience Festival
- 8) Promote and contribute to EDI initiatives, including the British Neuroscience Association scholars programme

[Read more about our strategy on our webpages](#)

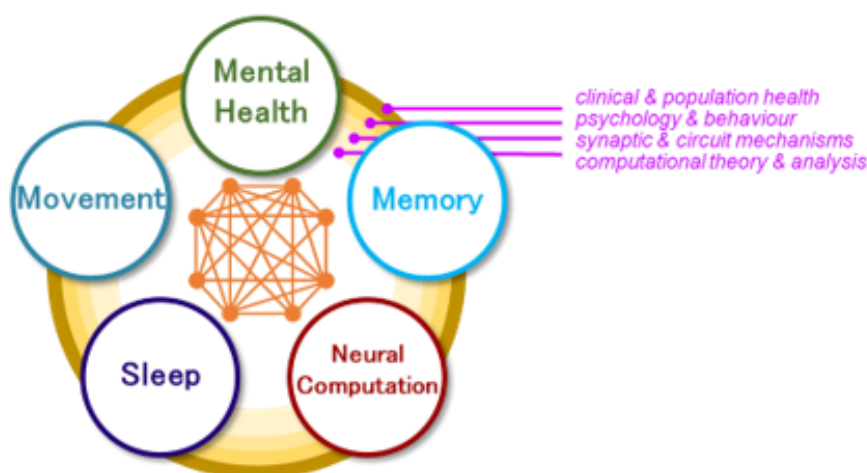


Image: BN is organised into five research Hubs which incorporate expertise in clinical and population health, psychology and behaviour, synaptic and circuit mechanisms, and computational theory and analysis.

New epilepsy research community

The [GW4](#) Building Communities Generator Award enables both new and existing groups across the universities of Bath, Bristol, Cardiff and Exeter to collaborate and address new research or societal challenges.

Dr [James Hodge](#) (Physiology, Pharmacology and Neuroscience [PPN]) led a successful funding bid to establish an Epilepsy Research Community within the GW4. This will be a multi-disciplinary group working together to improve understanding of epi-

lepsies through enhanced research, modelling, diagnosis and treatment. Collaborators include Dr Edgar Buhl, Dr Mike



Ashby and Prof Jack Mellor (all PPN).

Epilepsy is the most common primary neurological disorder worldwide, with 10% of people experiencing a seizure during their life. The formation of our collaborative research community is unique in that we will bring together for the first time a critical mass of researchers in the South West to overcome current hurdles in the diagnosis and cure of epilepsy.

James Hodge

[See the full list of successful awardees](#) in the round.

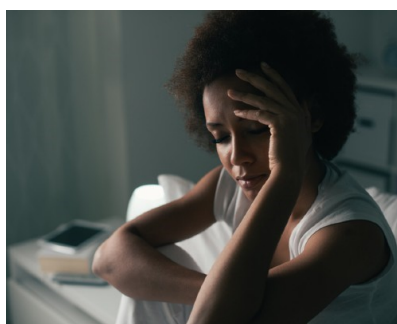
Insomnia could increase people's risk of type 2 diabetes

Insomnia, not getting enough sleep, and having a later bedtime, have been linked in previous studies to a greater risk of type 2 diabetes. In this study, the research team assessed whether these associations are explained by causal effects of sleep traits on blood sugar levels.

The study of over 336,999 adults living in the UK showed that people who reported that they often had difficulty getting to sleep or staying asleep had higher blood sugar levels than people who said they never, rarely, or only sometimes had these difficulties. The research team found no clear evidence for an

effect of other sleep traits on blood sugar levels.

The findings could improve researchers understanding of how sleep disturbance influ-



ences type 2 diabetes risk. The study also suggests that lifestyle and/or pharmacological interventions that improve insomnia might help to prevent or treat diabetes. Currently, there are some

treatments for insomnia. For example, UK guidelines to doctors recommend cognitive behavioural therapy (CBT) for insomnia, and short-term treatment of sleeping tablets or treatment with a hormone called melatonin if CBT does not work. Future studies to assess the impact of these insomnia treatments on glucose levels in people with and without diabetes could establish potential new treatments for the prevention and treatment of diabetes.

Liu J et al. (2022). [Assessing the causal role of sleep traits on glycated haemoglobin: a Mendelian randomization study](#). *Diabetes Care*.

Funding successes: Part 1

Dr [Stephen Montgomery](#) (Biological Sciences) received a USD \$1.44 million award from the **Human Frontier Science Program** for his project *Unravelling the mechanisms of brain and behavioural elaboration in ecologically diverse butterflies*. The study aims to develop and test some new tools for understanding and manipulating brains in tropical butterflies, with Arnaud Martin (Washington University, USA) bringing in expertise on gene editing, Basil el Jundi (Trondheim, Norway) adding neurophysiology, and Caroline Bacquet (IKIAM, Ecuador) adding her exper-



tise on methylation. The project will continue Stephen's work with Heliconiini butterflies to understand how brains evolve. These butterflies have

been studied for 150 years, but only recently has the

extent of variation in brain morphology been revealed, with some brain regions varying in size by over 25 times.

Dr [Stephanie King](#) (Biological Sciences) also received USD \$1.44 million from the funder for *The Social Origins of*



Rhythm. Stephanie, renowned for her work on dolphin social cognition, is lead applicant alongside co-Investigators Andrea Ravignani (Max Planck Institute for Psycholinguistics, Netherlands), Peter Madsen (Århus University, Denmark) and Peter Cook (New College Florida, USA). Using data from more than 30 marine mammal species, it will integrate approaches from field biology, comparative neuroscience, artificial intelligence, and speech sciences to test com-

peting hypotheses on the evolutionary roots of the social use of vocal rhythm.

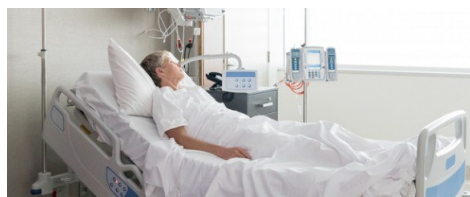
Bristol Clinical Research Facility funding bid successful

Bristol Clinical Research Facility (CRF) is one of five new CRFs across the country to have been awarded funding by the National Institute for Health and Care Research (NIHR) in their latest round of [CRF infrastructure funding](#).

The bid was led by David Wynick, Director of Research of University Hospitals Bristol and Weston NHS Foundation Trust and North Bristol NHS Trust and was for £3.5 million.

CRFs support the delivery of early translational and experimental medicine research, from first-in-human trials

through to early safety and efficacy trials (Phase IIa trials).



They provide purpose-built facilities and expertise for the delivery of high-intensity studies funded by the NIHR, the life sciences industry and other organisations. The funding begins in September 2022. The five-year pump priming funding will be supported by commercial early phase trials income, meaning that we can

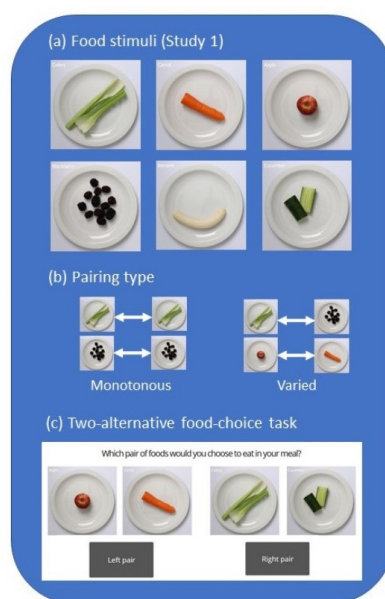
build on this initial success and offer more cutting-edge research, driving forward innovation and helping to identify new treatments for patients. The Bristol CRF will bring together early phase translational and experimental medicine research studies across Bristol under a single management and governance structure, covering research in a variety of areas that include cancer and immunity-based treatments, vaccine development and testing, cardiovascular medicine, neuroscience, and respiratory medicine.

Humans possess surprising nutritional intelligence

This international study led by Prof Jeff Brunstrom (Psychological Science) set out to re-examine and test the widely-held view that humans evolved to favour energy dense foods and our diets are balanced simply by eating a variety of different foods.

Contrary to this belief, findings revealed people seem to have “nutritional wisdom,” whereby foods are selected in part to meet our need for vitamins and minerals and avoid nutritional de-

ficiencies.



The results of our studies are

highly significant and rather surprising. For the first time in almost a century, we've shown humans are more sophisticated in their food choices, and appear to select based on specific micronutrients rather than simply eating everything and getting what they need by default.

Jeff Brunstrom (led author)

Brunstrom JM & Schatzker M (2022). [Micronutrients and food choice: A case of 'nutritional wisdom' in humans?](#) *Appetite*.

PARC Partnerships Fund

A scheme set up by the Perivoli Africa Research Centre (PARC) to promote transformed Africa research collaboration has awarded £200,000 to four Africa-based academics. Each awardee will lead a collaborative project with researchers from the University of Bristol. The funded projects are led by:

- Jacques Joubert (University of the Western Cape, South Africa) will work with Emma Robinson (Physiology, Pharmacology and Neuroscience) designing neuropharmaceuticals to permeate the blood-brain barrier and combat neurological disorders.

- Abraham Geremew (Haramaya University, Ethiopia) will work with Anisha Nijhawan (Civil Engineering) on climate resilience of multi-



Prof Bolelang Pheko (left) and James Ogude

- village water supplies in Ethiopia.
- James Ogude (University of Pretoria, South Africa) will work with Justin Williams (Music) to understand the role played by music in mobilising the anti-colonial move-

ment in Kenya and Tanzania.

- Bolelang Pheko (University of Botswana) will work with Rafael Mitchell (Education) to develop an indigenous model of crisis-sensitive leadership in Botswana.

This funding, provided by the University of Bristol's Development and Alumni Relations Office, specifically aims to help embed a mode of partnerships that goes further in redressing the multiple layers of power imbalances often found in global North-Africa research. The call included a brokerage service connecting African applicants to Bristol researchers.

[Read more](#)

CBBC's Deadly Predators

The research of Drs [John Fennell](#) and [Laszlo Talas](#) (both Bristol Veterinary School) was featured on CBBC's Deadly Predators show on 18 April 2022. Host Steve Backshall reported on tiger colouration. Whilst humans can readily tell the orange brown predator apart from

green vegetation, red-green colour blind observers (e.g. deer, wildboar and most mammals) have a difficult

time, especially when we consider that deer and boars do not have such great visual acuity like us (meaning they see things more blurry, especially at distance).

Steve did an experiment for John and Laszlo where they

showed him images of a plush tiger photographed in the jungles of Ashton Court under normal conditions and ones simulating a red-green colourblind observer with deer-level visual acuity. The images show the difference in perception between humans and the tiger's prey animals.



Watch the episode on BBC iPlayer [here](#) (please note you will need to have or set up an account).

Bristol part of new £22 million national genetics network

The Medical Research Council (MRC) National Mouse Genetics Network is a major new £22 million investment in mouse genetics for disease modelling that will capitalise on the UK's excellence in the biomedical sciences.

The Mary Lyon Centre at MRC Harwell will act as the central hub of the Network, sharing access to specialist facilities, resources, data, and training with all other Network members, and is receiving £5.5 million to support this role. The partnerships established by the Network will enable integration of basic science research with clinical findings in order to

accelerate our understanding of human disease and translation to patient benefit.

MURIDAE (Modalities for Understanding, Recording and Integrating Data Across Early



life) is one of seven cluster themes and will be led by Prof Anthony Isles at the MRC Centre for Neuropsychiatric Genetics and Genomics at Cardiff University.

Dr [Michael Ashby](#) from University of Bristol's School of Physiology, Pharmacology & Neuroscience is a member of the cluster, which is receiving £2.7 million of MRC investment. It aims to establish new approaches for studying the early postnatal period in mouse models of neurodevelopmental and neuropsychiatric disease. The key to this will be linking changes in behaviour in early life with changes in brain development through integration of home-cage behavioural monitoring data with measures of brain structure and physiology, all guided by clinical partners to ensure relevance to human disease.

[Read more](#)

Funding successes: Part 2

Prof [Jeff Brunstrom](#) (Psychological Science) with Dr Taro Takahashi (Bristol Veterinary School) and Carolyn Wynn (Head of Catering) were awarded one of 11 national awards, part of the **UK Research & Innovation** (UKRI)'s *Transforming UK Food Systems Strategic Priorities Fund* programme. The three-year interdisciplinary project (£338,000) comprises a unique blend of expertise in behavioural psychology and agricultural/environmental model-

ling. The team will improve health through reformulation or strategic menu design in catered environments. The project is grounded on the predictive mathematical modelling of food choices in a university catered setting and involves Bristol City Council and Bristol Food Network.

Prof [Nicola West](#) (Bristol Dental School) received £203,613 from the **National Institute for Health and Care Research** for a feasibility study *To assess whether reducing perio-*

dontal infection (gum disease) slows the progression of cognitive impairment associated with Alzheimer's disease, starting July '22 for three years.

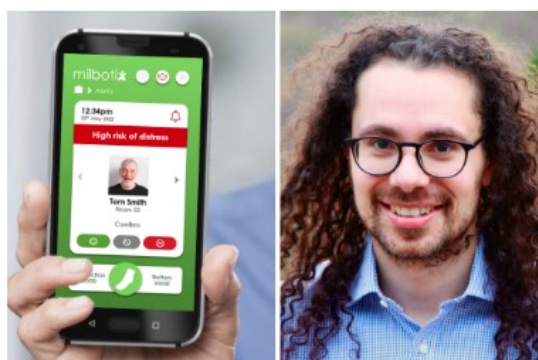
Prof [Frank de Vocht](#) (Bristol Medical School: Population Health Sciences) was awarded a £407,705 **Horizon Europe** collaborative grant for *5G exposure, causal health effects, and risk perception in children and workers through stakeholder engagement*.

Innovative 'smart socks' could help dementia sufferers

Inventor Dr Zeke Steer quit his job and took a PhD at Bristol Robotics Laboratory so he could find a way to help people like his great-grandmother, who became anxious and aggressive because of her dementia.

[Milbotix](#)'s smart socks track heart rate, sweat levels and motion to give insights on the wearer's wellbeing – most importantly how anxious the person is feeling. They look and feel like normal socks, do not need charging, are machine washable and provide a steady stream of data to carers, who can easily see their patient's metrics on an app.

Current alternatives to Milbotix's product are worn on wrist straps, which can stigmatise or even cause more stress.



Left: The display that carers will see in the Milbotix app. Right: Milbotix founder and CEO Dr Zeke Steer

Milbotix are currently looking to work with innovative social care organisations to refine and evaluate the smart socks. The business recently joined [SETsquared Bristol](#), the University's world-leading incubator

for high growth tech businesses. Dr Steer was awarded one of their Breakthrough Bursaries, which provides heavily subsidised membership to founders from diverse backgrounds. Dr Steer is also currently on the University's QUEST programme, which support founders to commercialise their products.

Dr Steer is now growing the business; testing the socks with people living with mid to late-stage dementia and developing the tech before bringing the product to market next year. Milbotix will begin a funding round later this year.

75 genetic risk factors brings new insights for Alzheimer's

Identifying genetic risk factors for Alzheimer's disease is essential if we are to improve our understanding and treatment of it. An international research team, which included University of Bristol scientists, has identified 75 regions of the genome that are associated with Alzheimer's disease.

Forty-two of these regions are novel, meaning that they have never before been implicated in the disease. The findings bring new knowledge of the biological mechanisms at play and open up new avenues for treatment and diagnosis.

Alzheimer's disease is the most common form of dementia, a chronic neurodegenerative disorder that affects more than 26-million

people worldwide, with no treatment available to improve the course of the disease. However, progress in human genome analysis along with genome-wide association studies are now leading to major advances in the field.



This complex, multifactorial disease, which usually develops after the age of 65, has a strong genetic component. Most cases are thought to be caused by the interaction of different genetic predisposition factors with environmental (e.g. diet, lifestyle) factors.

As part of an international collaboration, researchers from [InsERM](#), [Institut Pasteur de Lille](#), [Lille University Hospital](#) and [Université de Lille](#) and local researchers led by Prof [Pat Kehoe](#) (Bristol Medical School) conducted a genome-wide association study on a large patient group. The method allowed them to identify 75 regions of the genome associated with Alzheimer's. Analyses of the various genome regions confirm that some are implicated in amyloid peptide production and Tau protein function, two processes involved in the development of the disease.

Bellenguez C *et al.* (2022). [New insights into the genetic etiology of Alzheimer's disease and related Dementias.](#) *Nature Genetics*.

Newly elected BNA Trustee

Dr [Michael Ashby](#) (Physiology, Pharmacology and Neuroscience) has been elected as a Trustee to the British Neuroscience Association's (BNA) Council. Mike will take up his role as Credibility in Neuroscience Trustee in May 2022.

I am passionate about credibility in research because I believe that increasing credibility leads not only to a

more efficient discovery process, but it promotes the reputation of scientific research as a vital aspect of Society. This is key for the long-term future funding, impact and growth of scientific research. Ultimately it is the newly emerging future researchers who will drive change in culture as they develop their careers. It is vital that best practice in producing credible Neuro-



science is embedded into training early in the careers of young scientists. Targeting graduate training programmes and embedding credible research practices into learning opportunities for ECRs such as the BNA Festival of Neuroscience could further enhance impact of the BNA philosophy.

[Read more](#)

3D printed fingertip 'feels' like human skin

Machines can beat the world's best chess player, but they cannot handle a chess piece as well as an infant. This lack of robot dexterity is partly because artificial grippers lack the fine tactile sense of the human fingertip, which is used to guide our hands as we pick up and handle objects.

Research led by Professor of Robotics & Artificial Intelligence [Nathan Lepora](#) (Engineering Mathematics) created the sense of touch in an artificial fingertip using a 3D-printed mesh of pin-like papillae on the underside of the compliant



skin, which mimic the dermal papillae found between the outer epidermal and inner dermal layers of human tactile skin. The papillae are made on advanced 3D-printers that can mix together soft and hard materials to create complicated structures like those found in biology.

The team found that the 3D-printed tactile fingertip can produce artificial nerve signals that look like recordings from real, tactile neurons.

Pestell N & Lepora N (2022). [Artificial SA-I, RA-I and RA-II/ vibrotactile affer-](#)

[ents for tactile sensing of texture](#). *Journal of the Royal Society Interface*.

Pestell N, Griffith T & Lepora N (2022). [Artificial SA-I and RA-I afferents for tactile sensing of ridges and gratings](#). *Journal of the Royal Society Interface*.

Images: (top) Robotic hand with a 3D-printed tactile fingertip on the little (pinky) finger. The white rigid back to the fingertip is covered with the black flexible 3D-printed skin; (bottom) Cut-through section on the 3D-printed tactile skin. The white plastic is a rigid mount for the flexible black rubber skin. Both parts are made together on an advanced 3D-printer. The 'pins' on the inside of the skin replicate dermal papillae that are formed inside human skin.



Addressing weight through generations

New research presented at the European Congress on Obesity (ECO) in Maastricht, the Netherlands held 4 - 7 May 2022 has found that many parents attending commercial weight management programmes would be happy for their child, if overweight, to also receive support to reach a healthier weight.

Weight management programmes for children living with obesity can struggle to recruit, engage, retain, and

achieve clinically significant reductions in BMI z-scores. Parents living with obesity are more likely to have children with obesity. The team aimed to explore whether it is feasible to identify and engage children living with obesity into weight management interventions through parents attending a commercial weight management programme, so that the whole family can make changes together. They also sought

to understand whether the juncture at which a parent decides to act about their own weight, provides a favourable opportunity to engage families in support for children living with obesity.



Mears R *et al.* (2022). *Exploring the potential of recruiting children living with obesity to weight management interventions through parents attending a commercial weight management programme*. [ECO abstract book](#).

Smoking during pregnancy may not cause ADHD

Several studies have indicated that maternal smoking during pregnancy may contribute to offspring attention deficit hyperactivity disorder (ADHD); however, it is unclear from those studies whether this reflects a true causal effect or is the result of confounding factors such as socioeconomic position, education, income and maternal age. A new review attempted to find an answer to that question.

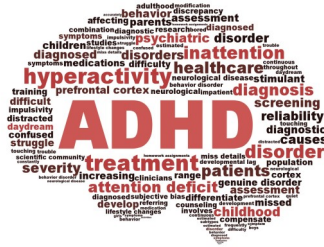
The review looked at 46 prior studies that assessed the association between maternal prenatal smoking and

offspring ADHD diagnosis. The review specifically included studies accounting for genetic effects, in addition to conventional approaches. Some of those studies had a low risk of bias (meaning they are unlikely to give misleading results) and were able to take into account genetic effects. Those studies indicate that shared genetics plays a substantial role in the association of offspring ADHD with prenatal smoking. This is supported by a previous systematic review based on genetically informed designs which also concluded that the

association between maternal prenatal smoking and ADHD is explained by shared genetics.

The review shows that there is no causal effect between maternal prenatal smoking and offspring ADHD diagnosis. However, pregnant women should still be advised not to smoke during pregnancy, as prenatal smoking has harmful effects on other child health outcomes.

Haan E *et al.* (2022). [Prenatal smoking, alcohol and caffeine exposure and offspring externalizing disorders: a systematic review and meta-analysis.](#) *Addiction*.



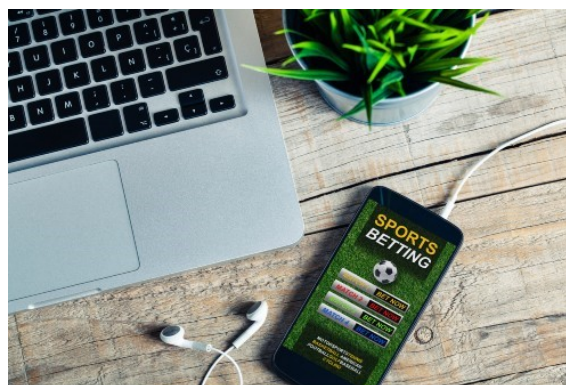
Gambling Harms Research Centre launched

A £4 million Gambling Harms Research Centre (GHRC) has been launched to build greater understanding and evidence around the growing and diverse impact of gambling harms across Great Britain.

Led by renowned multi-disciplinary research experts, the first of its kind research centre will apply a public health approach to advancing best practice research to deepen understanding and raise awareness of gambling harms.

The independent hub is funded by a grant awarded by GambleAware, following a rigorous and competitive selections process moderated by an inde-

pendent panel of experts. The Centre will aim to transform research on gambling harms by bringing new disciplines into the field and building research capacity both in Britain and internationally. Spearheaded by some of the



nation's leading minds in public health, consumer research and personal finance, the GHRC is set to place Britain at the global forefront of evidence-based multidisciplinary action to prevent and reduce the negative impacts of gambling.

[Read the full press release](#)

Siblings and the genetics of disease

Genetic studies aim to find regions of the genome that associate with diseases or other outcomes. A new study has shown that for social traits these genetic effects are due to a mixture of direct effects (e.g. biological effects of DNA), and indirect effects (e.g. family or social environment).

Whereas biological traits are mainly driven by direct effects.

An international group of 100 scientists studied 178,076 siblings to estimate

the effects of genetics and environment on health and social outcomes. They found that the genetic factors on more social traits – like educational attainment, age of first child and depression – are strongly influenced by either the family or social environment. In contrast, the genetic influences on more biological traits – such as cholesterol and BMI – were found to be less socially influenced.

The findings suggest large-scale family datasets provide new opportunities to quantify

direct effects of genetic variation on human traits and diseases. Looking at sociological questions and genetics together is a powerful tool for understanding why different health and social outcomes happen, providing better insight for potential interventions and treatments.

Howe L *et al.* (2022). [Within-sibship GWAS improve estimates of direct genetic effects](#). *Nature Genetics*.

Hesitant, rather than opposed to, the COVID-19 vaccine

A study that explored the attitudes of vaccine hesitant adults in the UK towards uptake of the COVID-19 vaccine found that participants were hesitant rather than opposed to the vaccine. Concerns were exacerbated by a lack of trust in government and misunderstanding of science, the University of Bristol-led study found.

Researchers interviewed 35 people aged between 18 and 29 who had not had the vaccine, and 35 people aged between 30 and 49 who had not had the second dose of the vaccine after 12 weeks, to understand what the barriers to vaccination

were and what facilitated uptake.

Although hesitant about receiving a first or second dose of a COVID-19 vaccine, the majority of participants did not consider themselves to be anti-vaccine, and were usually able to recognise the possible benefits of being vaccinated for themselves and those around them. Younger people did not consider themselves to be at risk of becoming ill from COVID-19, did not think

the vaccination was effective in preventing transmission, and did not think sufficient research had been done regarding possible long-term side-effects.

Safety concerns were frequently mentioned by participants who had not received a first or second vaccine dose, with many describing a range of side-effects they or friends and family had experienced, or that they had been exposed to through the media.

Denford S *et al.* (2022). [Exploration of attitudes regarding uptake of COVID-19 vaccines among vaccine hesitant adults in the UK: a qualitative analysis](#). *BMC Infectious Diseases*.



Teaching techniques which boost exam performance

With the exam season in full swing, teenagers taking their GCSEs are hoping their teachers covered everything so they can achieve top marks. The methods teachers use in the classroom could also hold the key to improving pupils' grades. The study sheds new light on the fascinating and elusive question: what makes an effective teacher? For the first time in the UK, researchers have identified which teaching practices drive up



exam results and how different class activities work better depending on the subject.

Whether or not you have an effective teacher is by far the most important factor influencing pupils' GCSEs, outside of your family background. This unique research unlocks the black box to effective teaching, helping us understand what specific teaching practices are more likely to produce better test scores. "This is crucial to know as it could also make a dra-

matic difference to a child's life chances and their potential future earnings.

Simon Burgess, lead author

The research showed that how teachers used class time had a significant impact on their pupils' results. In fact, typical variations in class activities between teachers accounted for around a third of the total influence of teachers on the GCSE marks of their pupils.

Burgess S et al. (2022). [Characterising effective teaching](#). School of Economics, University of Bristol.

How predatory fish cope with unpredictable prey

Instead of simply fleeing directly away from a predator, many prey species from across the animal kingdom choose to escape in a surprisingly wide range of directions. Scientists have long suspected that this unpredictability helps them evade capture by keeping predators guessing about the prey's next move.

By studying how real predatory fish (blue acara cichlids) attack robotic prey, researchers from Bristol's School of Biological Sciences were able to experimentally test this idea. Rather

than confirming that unpredictable escape tactics are beneficial to prey, the new research suggests that preda-



tors can neutralise this strategy by flexibly adjusting their own behaviour.

Like many real prey hiding from predators, the robotic prey started each experiment

motionless, before eventually fleeing once the cichlid predator got too close. But unlike real prey, their escape direction could be programmed in advance. This key design feature enabled the researchers to vary how predictable the prey's escape direction was over a series of interactions with the predators.

Ioannou C et al. (2022). [Responsive robotic prey reveal how predators adapt to predictability in escape tactics](#). *Proceedings of the National Academy of Sciences*.

Image by C Ioannou of a blue acara cichlid

Child sex abuse victims reveal barriers faced

Child sex abuse victims whose cases are going through the criminal justice process, are going through the trial alone or faced with on average a two and a half year wait to access pre-trial therapy, according to one of the findings from a new Home Office-funded report led by University of Bristol researchers.

In the [report](#), Bristol Medical School researchers sought to understand the factors preventing children from receiving care while

investigating how to improve access to services, of which, historically legal processes have restricted, based on the view that discussing case de-



tails may damage the quality of evidence.

It is estimated that as many as 15% of girls and 5% of boys

will experience child sex abuse (CSA) before the age of 16. Many of these cases will never make it into the criminal justice system. The majority of which do not tell anyone about the abuse at the time, and even fewer see their case reach court – in the year ending March 2020, only 12% of CSA offence investigations resulted in a decision to charge the offender.

The report entitled '[Keeping Secrets](#)' is available on the [Blue Star project](#) website.

Dementia projects supported by NHS Ageing Well

Bristol Health Partners' Health Integration Teams (HITs) work on healthy ageing projects across Bristol, North Somerset and South Gloucestershire (BNSSG). Several new projects aiming to improve dementia care will be supported as part of £1 million NHS [Ageing Well](#) funding from [BNSSG Healthier Together](#).

Dementia is a growing challenge. It is estimated that 850,000 people in the UK live with a dementia, and that one in three people will care for someone with a dementia in their lifetime.

The Ageing Well programme aims to improve

the quality of life for older people, so that everyone in Bristol, North Somerset, and South Gloucestershire can stay well as they get older. This includes supporting the population to stay healthy and independent in the community, and at home for as long as possible.

To do this, pilots running for 12 months will address gaps in support: increasing urgent community response services, planning for people's future health and care needs, and enhancing healthcare across all care home beds.

Funding secured by Bristol Health Partners' [Dementia HIT](#) will enable organisations

we work with to deliver dementia projects in the region in four areas:

- supporting people with dementia in care homes
- supporting people from ethnic minority backgrounds with dementia, and their carers
- running dementia meeting centres in communities across the region
- working with people with lived experience to train health and social care staff, and informal carers, in improving understanding of dementia.

[Find out more about what the Dementia HIT works on](#)

'Right size' portions of high-calorie foods

Humans moderate the size of energy-rich meals they consume, suggesting people are smarter eaters than previously thought.

The findings revisit the long-held belief that humans are insensitive to the energy content of the foods they consume and are therefore prone to eating the same amount of food (in weight) regardless of whether it is energy-rich or energy-poor. This idea stems from previous studies which manipulated the energy content of foods or meals to create

low- and high-energy versions. In those studies, people were not told whether they were eating a low- or a high-energy version, and findings



showed they tended to eat meals of the same weight, resulting in greater calorie intake with the high-energy version.

For years we've believed that humans mindlessly overeat energy-rich meals. Remarkably, this study indicates a degree of nutritional intelligence whereby humans manage to adjust the amount they consume of high-energy density options.

Annika Flynn, lead author

Flynn AN *et al.* (2022). [Time to revisit the passive over-consumption hypothesis?](#)

[Humans show sensitivity to calories in energy-rich meals.](#)

The American Journal of Clinical Nutrition.

Toolkit to improve dementia care for South Asian people

People living with dementia from South Asian communities will benefit from improved culturally sensitive support, thanks to a new online toolkit. The [toolkit](#), hosted by the [Race Equality Foundation](#), will provide enhanced care for members of South Asian communities – many of whom [receive significantly less effective dementia care from statutory services](#) compared to their counterparts from White British communities. People from South Asian communities are at greater risk of developing dementia but are less likely to access all points of the care path-

way – and more likely to present in crisis and/or at a later stage. They are more likely to face barriers including a late or missed diagnosis, reduced access to treatments, and inappropriate or inadequate support coupled with problems caused by language barriers. They often rely on local, community-led organisations for support.

Alarmingly, the number of people from South Asian and communities with dementia is expected to increase seven-fold by 2051, due in part to inequalities in service provision and the increased risk of other health factors associat-

ed with dementia. For White British people, the rise is expected to be more modest – doubling over the same time period.

The project was jointly led by researchers from the University of the West of England (UWE Bristol) and the University of Bradford, with other collaborators including the Race Equality Foundation, the [Dementia Alliance for Culture and Ethnicity](#) and NHS Bristol, North Somerset and South Gloucestershire Clinical Commissioning Group, as well as researchers from the universities of Bath and Wolverhampton.

ELIZABETH BLACKWELL FUNDING

Nurturing
Research.
Improving
Health.



Research for Equality, Diversity & Inclusion in Health and Biomedicine

This includes projects that focus on the way in which research is conducted (careers and research community) as well in projects that focus on the equality, diversity and inclusion in the delivery of research or the analysis of data. Research projects should demonstrate clear pathways to deliverables and next steps, such as impact on practice or submission of applications for external research funding.

Closing date: 25 July 2022

Elizabeth Blackwell Institute support scheme for academic training 2022

This scheme is designed to provide support for attending or accessing externally-provided training courses, including training in research methods and techniques, in all areas of health research.

Closing date: 31 August 2022

Elizabeth Blackwell Institute academic bridging funding scheme 2022

We have funding available to provide bridging funding for salaries of academic staff in health-related research in all Faculties at the University of Bristol.

Closing date: 31 August 2022

Workshop support

We offer support for workshops in health and biomedical research to facilitate new interdisciplinary connections. Applications reviewed all year.

Returning Carers Scheme

The University of Bristol is running a Returning Carers Scheme (RCS) to support academic staff across all faculties in re-establishing their independent research careers. Applications reviewed all year.

FUNDING OPPORTUNITIES

Research Professional provides access to an extensive database of funding opportunities, and can send out tailored alerts based on specific keywords input by the user. UoB staff and students have **FREE** online access to the database from any device.

You can search for funding information by discipline, sponsor, database searches, by recent calls or by upcoming deadlines. If you register for the site and log in, you'll be able to:

- **Set up automated funding opportunity email alerts - tailored according to your discipline and research interests**
- **Save searches and bookmarks**
- **Sign up for higher education news bulletins**

Find out more about the platform on the [RED website](#). Note that some calls may have an internal process; check the [major bids webpage](#) to see if such a process is in place.

The following listings represent a *brief selection* of available funding for the Bristol Neuroscience community. **Full listings of opportunities** are sent out via Faculty Research Directors and/or School Research Directors, and **are available on the [Research Development website](#)**.

* Research Professional

National Institute on Aging, US

[Research on current topics in Alzheimer's disease and related dementias \(clinical trial optional\)](#)

Closing date: 8 July 2022

Award amount: unspecified

Supports research on current topics in Alzheimer's disease and its related dementias. US and foreign organisations may apply. The number of awards is contingent upon NIH appropriations and the submission of a sufficient number of meritorious applications.

Friedreich's Ataxia Research Alliance, US

[General research grants](#)

Closing date: 15 July 2022

Award amount: USD \$300,000

These support research on Friedreich's ataxia. Research must fall within one of the following areas: advancing understanding of neuroscience systems; advancing understanding of cardiac disease in FA; advancing understanding of the molecular basis of FA; advancing drug discovery; facilitating the drug development process and translational research; advancing clinical research.

Hanse-Wissenschaftskolleg

[Regular and junior fellowships](#)

Closing date: 15 July 2022

Award amount: unspecified

These enable scholars to focus on research and interact with colleagues from other disciplines.

Research areas on the brain and mind, earth, energy and society will be supported. Regular fellowship applicants must have held a PhD (or comparable) for more than 5 years and junior fellowships applicants must have earned a doctoral degree within the 5 five years. Fellowships last between three and 10 months. Financial conditions are negotiated on an individual basis.

National Institute for Health and Care Research

[Health and social care delivery research programme – researcher-led workstream: 22/47](#)

Closing date: 19 July 2022

Award amount: unspecified

Supports research that produces evidence to impact on the quality, accessibility and organisation of health and social care services, including evaluations of how the NHS and social care might improve delivery of services. Open to all research areas but also has an interest in: dementia; surgical and implantable devices; primary care interventions; very rare diseases; long-term conditions in children; multimorbidities in older people; prevention and treatment of obesity; mental health; chronic pain; frailty; complex health and care needs in older people.

Alzheimer's Research UK

[Research fellowships](#)

Closing date: 27 July 2022

Award amount: unspecified

Support early-career non-clinical researchers beginning an independent project on Alzheimer's and related dementias.

BRACE

[PhD studentships](#)

Closing date: 15 August 2022

Award amount: £90,000

Enable PhD students in SW England or South Wales to conduct research into dementias. Research is supported in four main areas: understanding how the brain works and what has gone wrong in someone with dementia; development of effective and accurate means of diagnosing the condition as early as possible; finding new treatments and assessing their effectiveness in clinical trials; investigating the potential link between certain DNA genes and the chances of developing dementia.

European Academy of Neurology

[Research fellowship](#)

Closing date: 31 August 2022

Award amount: €24,500

Supports training and experience for neurologists in any area of basic, clinical or applied research. There are types: *research training fellowship* for the completion of a higher degree, a grant application or peer-reviewed publication, lasting 6-12 12 months; *research experience fellowship* for individuals who might otherwise not have the opportunity to gain high quality research experience but who wishes to pursue a research career, with consideration also given to more experienced clinicians or researchers requiring training in a specific research methodology or technique. Typically last up to six months.

SHOWCASED ARTICLE

Background music changes the policy of human decision-making: Evidence from experimental and drift-diffusion model-based approaches on different decision tasks

Perez Santangelo A, Ludwig CJH, Navajas J, Sigman M & Leone MJ. (2022).

Journal of Experimental Psychology: General.

Music is ubiquitous in our lives. Although we listen to music as an activity in and of itself, music is frequently played while we are engaged in other activities that rely on decision-making (e.g., driving). Despite its ubiquity, it remains unknown whether and how background music modulates the speed and accuracy of decision-making across different domains. We hypothesised that music could affect decision-making through a subjective-timing distortion or via a policy shift toward less-cautious responding. We analyzed response times and accuracy from more than 100-thousand decisions and mapped the effects of music onto decision-process components with a mechanistic model of decision-making. We found evidence supporting the latter hypothesis, by which decisions—across domains—were faster but less accurate with music, and this trade-off was mainly driven by a less conservative decision policy. Overall, our results suggest that background music shapes our decisions by making us less cautious.

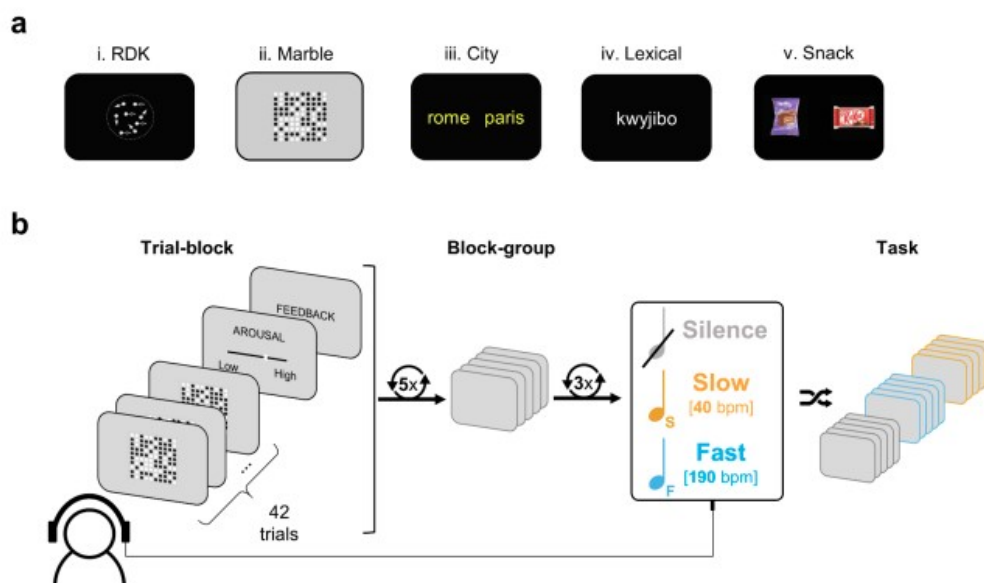


Figure 2. Decision-making tasks and experimental design.

or more white marbles. (iii) City is a memory-inference-based choice paradigm; the goal is to decide which of two cities (left or right) has a higher population. (iv) Lexical is a lexical categorization choice paradigm; the goal is to decide whether a string is a word or not. (v) Snack is a value-based choice paradigm; the goal is to decide which of two previously rated snacks (left or right) one prefers. (b) Trial structure was the same for all tasks: 630 trials divided in 3 block-groups of 5 blocks of 42 trials each, in which stimulus intensity and response location for each trial were pseudo-randomly assigned in a balanced manner. Every 42 trials, participants reported subjective arousal levels and then received accuracy feedback (except in Snack). Crucially, each task was completed in 3 randomly-assigned experimental conditions: in silence (light gray) and while listening to slow (S: 40bpm, orange) or fast (F: 190bpm, light blue) music. We collected response time and accuracy for each decision.

Image: (a) All participants completed five decision-making tasks: (i) Random dot kinetogram (RDK) is a perceptual choice paradigm; the goal is to decide whether a cloud of dots appears to move leftward or rightward. (ii) Marble is a perceptual choice paradigm; the goal is to decide whether a board contains more black

CONTACTS



Bristol Neuroscience

Director: [Matt Jones](#), Professorial Research Fellow in Neuroscience
Area of research - neuronal networks in cognition and disease

Memory Hub Lead: [Emma Cahill](#), Lecturer
Area of research - Physiological basis of memory and adaptive behaviour,



Movement Hub Lead: [Paul Chadderton](#), Associate Professor in Neurophysiology.
Area of research - to reveal the cellular and circuit mechanisms involved in motor control and learning in the cerebellum



Neural Computation Hub Lead: [Conor Houghton](#), Associate Professor in Computer Science
Area of research - understanding information processing and coding in the brain



Sleep Hub Lead: [Matt Jones](#) (as above)

Mental Health Hub Lead: in progress

Network Facilitator: Sandra Spencer, Research Development Manager for Life Sciences



Network Administrator: [Catherine Brown](#) (Elizabeth Blackwell Institute)



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