



Photo credit: Prof. Noel Buckley.

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News Team DPUK-JG are Go

The Dementias Platform UK (DPUK) team, under directorship of Professor John Gallacher, were gathered together for a friendly social in a local pub, one chilly evening towards the close of 2017. Out of the blue, I announce it might be a splendid idea if I started a 'couch to 5k' programme in the Spring, finishing with a graduation at a local Parkrun, for team building, brain fitness and sheer enjoyment! The groans and gasps were equalled by an amazing number of positive responses, triumphed by the Director's look of horror opposite the table, agreeing only if charitable funds were collected and we did not run in pink. When the email went out in the Spring with the subject line: 'Spring has Sprung – Park Run has Risen – Team DPUK-JG are Go' a varying number of DPUK troops gathered outside Psychiatry Cottage to do the rounds at South Park each week for 12 weeks. On the 2nd of June, the whole team very proudly gathered at Abingdon Parkrun to run their first 5k race, donning their 'white' DPUK Team JG t-shirts. Having managed to sustain the only major team injury, I could only watch from the side-lines with cast and crutches but DPUK-JG were definitely Go as they all completed the course. A celebratory BBQ was held afterwards and there was definitely talk about the 'next stage', 5-10k? Watch this space, are any of you up for joining us?

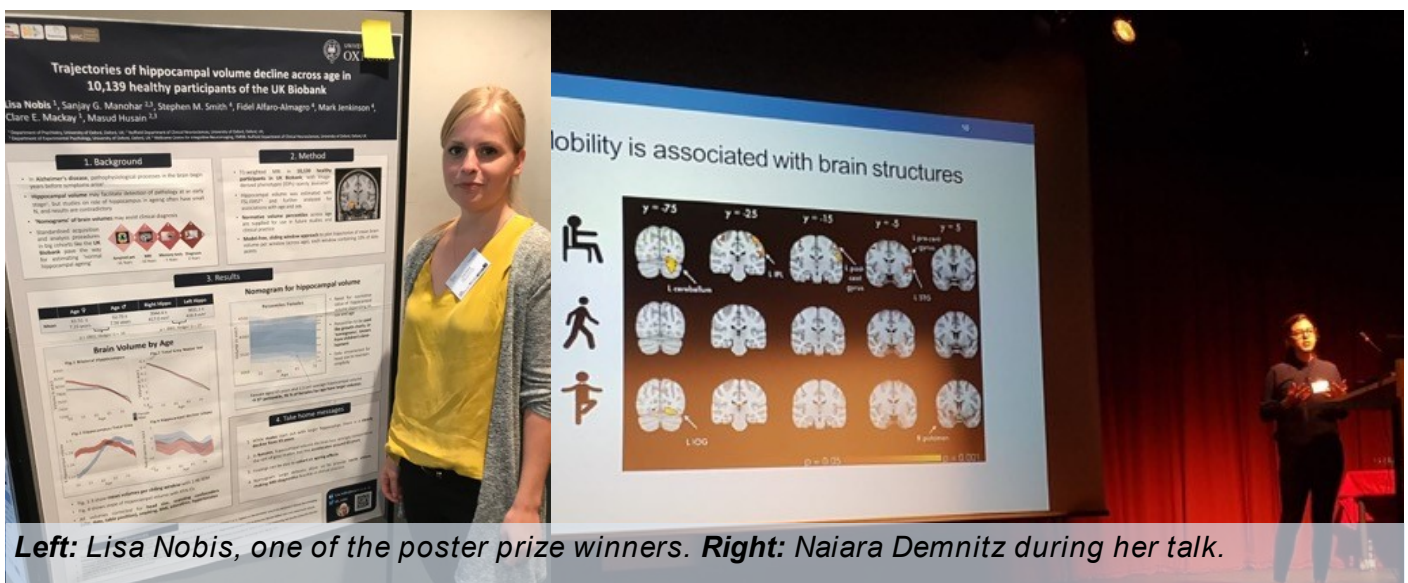
Article credit: Dr Sarah Bauermeister



Team DPUK JG are Go in the fight against dementia.

The ARUK/BRC Dementia Research Day was held at St. John's College, in July. This conference was well attended by both clinicians and researchers, who all share a strong interest in advancing our understanding of ageing and dementia. The talks covered a range of interesting topics, including the relationship between mobility and the ageing brain (Naiara Demnitz, University of Oxford), how bilingualism might be protective against cognitive decline (Toms Voits, University of Reading) and the interaction between the APOE e4 gene and forgetting (Dr Chris Butler, University of Oxford). As the keynote speaker, Professor Diane Hanger (King's College London) also delivered a fascinating talk on how cell and animal models can be used to shed light on the molecular mechanisms related to dementia.

To find out more about ARUK, see <https://www.oxdare.ox.ac.uk/aruk>



Left: Lisa Nobis, one of the poster prize winners. **Right:** Naiara Demnitz during her talk.

The PPI results are in!

We would like to thank all of our readers who took the time to complete the PPI questionnaire earlier this year. Based on your feedback, we have introduced a new section on researcher profiles (Pages 4 – 5) and will regularly interview scientists about their research. In this issue, we talked to Sammi Chekroud (Pages 8 – 9) about his recent Lancet publication examining the associations between physical activity and mental health.



As there was a strong preference for the Winter (2017) issue of the newsletter, we also plan to keep the style of this issue in both the present and future newsletters. We hope that you enjoy reading the current issue and if you have any further suggestions, please contact us at oxdare@psych.ox.ac.uk!

Article credit: Melis Anatürk

Researcher Profiles

In this new section of the newsletter, we get to know the OxDARE scientists behind the research, including what motivates their interest in research and their favourite activity to do in Oxford. For this issue, we spoke to Elwira Lubos, Dr. Vanessa Raymont and Sophie Walker. Check out their interview below!



Elwira Lubos

Senior Research Nurse

Oxford Cognitive Health Clinical Research Facility

Q. What are your main research interests?

Elwira: I must admit I have very broad interests in research, however particular interest is development of new treatments for serious and enduring mental health conditions for patient groups that are often under-represented, e.g. those with schizophrenia, people with learning disabilities and also preventative and health promotion interventions.

Sophie: We work largely on Alzheimer's Disease prevention studies, by recruiting for large cohorts and seeing how healthy people age, and who is at risk of developing the disease. I'm interested in how our lifestyle affects how we age and our disease risk, in particular food & nutrition, as well as how the dynamics of relationships we have affect cognitive resilience and cognitive decline as we get older.

Q. Why did you decide to get involved in ageing and dementia research?

Elwira: I enjoy challenges and working out puzzles. I think trying to find the mechanisms that lead to development of dementia is like trying to create a picture with join the dots matrix, where the dots are visible but the numbers are missing. In the process we create a picture, but then new dots (pieces of information) emerge, so we need to start from the beginning. I think in the world of dementia, the biggest discoveries are still in front of us. There are many people trying to work on the development of new therapies, and the energy and enthusiasm are very catching. I think it is exciting and very stimulating to be part of such a dynamic and dedicated team.

Sophie: My first job after my psychology degree was working with survivors of psychological trauma, and war veterans in particular. I started working in care homes, with people who had survived WWII and also had dementia; what they remembered

Dr. Vanessa Raymont

Senior Clinical Researcher and Honorary Consultant Psychiatrist

Department of Psychiatry, University of Oxford



Researcher Profiles

and what they didn't from their lives fascinated me so much I realised that this was the area for me!

Vanessa: I did my initial training in adult and old age psychiatry and then a master's degree in neuropsychology. That's when I really began to enjoy understanding more about how the brain works, and became interested in how it's affected by head injuries and what happens to cognition in later life after such injuries. I then spent time at the National Institute of Health in the USA working on a study of people with head injuries from the Vietnam conflict. When I came back to the UK, I wanted to continue working within the fields of head injury and cognitive impairment. I do some brain injury work, but my main focus is now in memory research. My father died last year with dementia, and I think that reinforced for me on a very personal level, the importance of trying to treat and support people with these conditions and maybe even stop them occurring in the first place.

Q. What is your favourite activity to do in Oxford, during your free time?

Elwira: If I had the chance to do whatever I like, I would probably spend my free time walking the Scottish Highlands. In real life however, with job and home to look after, I spend my free time looking after my allotment and growing vegetables. In the future I would really like to keep chickens.

Sophie: I love the river life here in Oxford, and my favourite thing to do is going in my inflatable kayak up the river to Port Meadow for a picnic or pub stop – it's such a special, unusual sanctuary for a city to have!

Vanessa: I am bad at pub quizzes but enjoy them and I have recently taken up golf.

Q. Do you have any recommendations for a book/ movie/ holiday?

Elwira: I currently read books by author Jodi Picoult, and I could not recommend her more!

Sophie: My recommendation is for your next holiday! I love travel and think it's a great way to keep your mind and body active and inspired at any age. I'd recommend Georgia for the wine, food and mountains, and Malawi for the people and beautiful Lake Malawi.

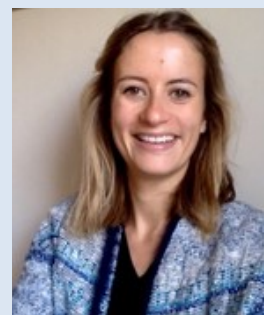
Vanessa: Any book by Jackie Parry (she writes great travel books) and my favourite movie has to be *Howards End*.

Sophie Walker

Research Assistant

Translational Neurosciences Group

Department of Psychiatry, University of Oxford



The gene clusterin (CLU), with a known role in inflammation, is a major genetic risk factor for Alzheimer's Disease. However, a recent study lead by Prof. Simon Lovestone, has revealed that it also acts through an important pathway leading to cell death in Alzheimer's Disease, which is dependent upon amyloid-beta.

The collaboration between researchers at the University of Oxford, King's College London, and AstraZeneca used cutting-edge techniques to study why and how brain cells die. CRISPR/Cas9 genome editing is a technique that allows scientists to make precise edits in the DNA code. In this study, CRISPR/Cas9 was applied to silence the CLU gene expression in human stem cells, which were differentiated into cortical neurons. These neuron cultures were exposed to amyloid-beta oligomers, a hallmark of the disease, and imaged. The results showed that neurodegeneration only occurred in the neurons that continued to express CLU (i.e. 'wildtype' neurons), whereas neurons that did not express clusterin were protected against the toxic effects of amyloid-beta (pictured below).

Dr. Robbins, the first author on the paper, said "I was very excited about our results which demonstrate that human neuron cultures provide an excellent system for us to observe the specific effect of a single gene on neurodegeneration, so we can better understand the key processes of cell death in the brain and prevent it." This research at the Department of Psychiatry continues to study the known mutations in the CLU gene in Alzheimer's patients, and could potentially extend to investigate clusterin as a target to halt the neurodegenerative process in patients. The full paper can be found in the [Frontiers in Neuroscience](#) .

Article credit: Dr. Jacqueline Robbins

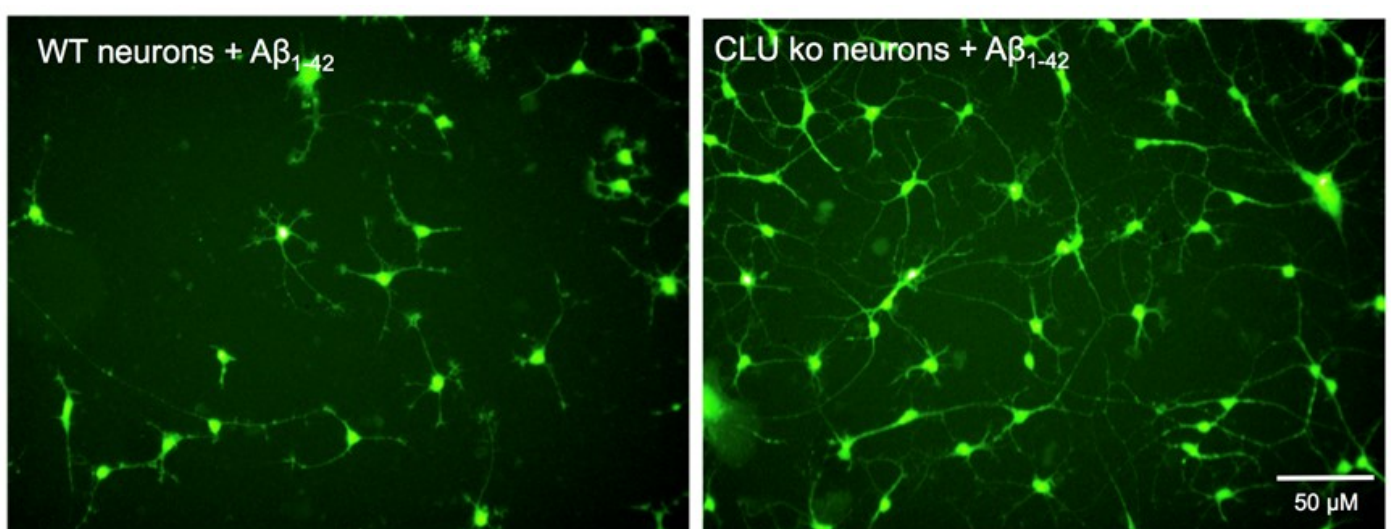


Figure 1. Genetically typical neurons degenerate when exposed to amyloid (left), whereas neurons lacking the clusterin protein are protected against amyloid exposure (right).

In one of the largest studies published to date, Naiara Demnitz and colleagues have found links between mobility and cognition among adults.

The researchers examined data collected from 28,808 people enrolled in the Canadian Longitudinal Study on Aging. Each individual had completed a range of cognitive tests and measures of mobility, which include assessments of balance and gait (i.e. the way in which an individual walks). In their study, Demnitz and colleagues found that reduced mobility was related to poor performance on all measures of cognition, including executive function, memory and processing speed. These researchers also reported that the mobility-cognition links became stronger as an individual aged. The findings of this study suggest that mobility could be an important target for interventions aimed at maintaining good cognitive health in the later years of life.

Regarding the results of her study, Demnitz said “Large publicly-available datasets, like the Canadian Longitudinal Study on Aging, are a great opportunity to explore factors that play a role in healthy brain ageing. Using this dataset, we found that mobility may be one such factor. Following from these results, we are currently testing whether improving mobility, through physical activity, has a beneficial effect on the cognitive function of older adults.”

The paper can be accessed in the [Journal Gait & Posture](#).

Article credit: Melis Anatürk and Naiara Demnitz



Research | Is exercise good for your mental health?

Sammi Chekroud is a newly matriculated PhD student and first author of a recent [Lancet publication](#) examining the associations between exercise and mental health. In our interview with Sammi, we learn more about this study and its implications, the challenges that researchers face in this field and current physical activity recommendations based on the latest research findings.



Sammi Chekroud

DPhil Candidate in Experiment Psychology
University of Oxford

Q. Can you describe your study on the relationship between physical activity and mental health?

A lot is known about the relationship between exercise and our physical health: exercise is associated with reduced all-cause mortality, cardiovascular disease, stroke, and diabetes; but its relationship with our mental health is a little less clear. So we found the biggest dataset that we could find, of a nationally representative group of individuals in the US, to try and look at how exercise is associated with mental health across a range of socio-demographic characteristics in a large sample. We used some advanced statistical modelling to find that, across all 1.2 million individuals, exercise was associated with a 43% reduction in bad mental health – this is after controlling for various sociodemographic characteristics such as age, household income, education level, BMI, and others. As a result of the size of the data, we were able to look at more specific features of exercise too: we can look at this association as a function of different types of exercise, how long they were done for (duration) and how often (frequency). We found that some exercises were better than others, and that some durations and frequencies of exercise were associated with the least bad mental health: 45 minutes per session, 3-5 times per week.

Q. Are there any exercises that were particularly important for mental health?

Due to the size of the data we were able to analyse, we were able to look at different types of exercises and how they were associated with mental health. We found that team-based, popular sports – things like football, netball, hockey, the kinds of sports you may have played at school – were associated with the best mental health. This was followed closely by more individualistic exercises, cycling, then aerobic or gym exercises.

Would you expect to see this relationship at all ages, or within particular age groups (e.g. middle aged or older adults)?

The great thing about our study and its size is that we were able to look at this

association across a huge range of ages above 18, including much older individuals. This effect was present across all of the ages, which is really encouraging! We also saw a positive effect for things that people wouldn't think of as 'exercise', like walking. This means you don't have to run marathons to potentially see some benefit to your mental health. It's important to find an exercise that, primarily, you enjoy, you can perform safely, and are likely to want to fit into a routine. The regularity of exercise is important in being able to continue. Even walking for 45 minutes once a day could be great for both the body and the mind!

Q. What is one of the main challenges experienced by scientists within this area? Are there any studies that could be performed to address these limitations?

One problem is that the really large studies are typically, like ours, cross-sectional. In these kinds of studies, we take a snapshot of what a large number of people are telling us, and try to make sense of it. A better way of looking at the relationship between mental health and exercise would be to make people do a specific kind of exercise (a certain number of times per week, and for a certain duration) and look at their mental health before, and after a certain amount of time. This gives a better, controlled way of seeing how exercise influences mental health. These kinds of studies are hard to scale up to large numbers, however, because of the cost requirement: they take a long time, require a lot of manpower and require accurate measurement of exercise (e.g. using wearable devices like a FitBit, which cost!). There is a real need for large-scale, prospective, controlled studies to fill this hole in our knowledge-base, or to clarify some things that are more debated within the field.

Q. Do you have any advice for adults seeking to improve their physical activity levels?

Find an exercise that you enjoy and that you are motivated to fit into your routine. If you aren't used to exercise, start small and build up to a level that you can fit into your lifestyle. The optimal ranges we found (45 minutes, 3-5 times per week) and the guidelines provided by the NHS are things that it's good to aspire to, but it's ok to take your time getting there. If you struggle to find the motivation to just run, find a team sport. Find a running group, cycling club, netball team, a local rowing or football club. It's easier to be motivated to exercise when you're doing it with other people, and this makes it more likely that you'll stick with it. Find a buddy and head to the gym. There are all kinds of options and it's important to find what works for you in helping you to lead an active, healthy lifestyle.

If you are interested in improving your physical fitness as well as meeting new people, you can join a health walking group (page 12) or learn more about other activities in Oxfordshire at <https://www.oxspa.co.uk/50plus>

Be a GameChanger and play your part in dementia research! (Ethics code: R58202/RE001)

GameChanger is a national research project led by the University of Oxford and supported by Alzheimer's Society. We need thousands of people across the UK to download our smartphone app and play fun, thinking tasks on your smartphone for five minutes a day, every day, for a month. By understanding more about thinking and memory in people who do not have dementia, we will be able to advance the detection of individuals showing the very earliest signs of dementia, allowing for earlier intervention and treatment.

You can take part from your own home. To join you:

- * Must own an Apple or Android smartphone
- * Must be aged 18 years or older
- * Must not have a diagnosis of dementia.

When you first join GameChanger we will ask you a few questions such as your date of birth and sex. From there, each day we will select a thinking task for you to complete via the Mezurio App.

For the next 2 years, we will annually invite volunteers to complete GameChanger using the Mezurio app. By asking people to engage each year we will be able to investigate how 'healthy' cognition changes over time.

How can you get involved?

- * Visit www.joingamechanger.org to register your interest
- * You will receive an email from GameChanger, and then will be able to download the free Mezurio app from the App Store or Google Play Store.
- * Start playing!



Carers' experience of assistive technology use in dementia (Ethics code: R57703/RE001)

We are looking for individuals aged 18 and above, to take part in a new study called the Carers' experience of assistive technology use in dementia. It is open to anyone who is family, friend, or neighbour of a person with dementia (living at home) and has used at least one assistive technology device. Assistive Technology are products such as talking clocks, electronic medication dispensers, robotic vacuum cleaners, smart gas meters, communication books, GPS navigation systems, falls and motion detectors, smart phone apps and door exit alarms. Participants will be invited, with consent, to take part in an interview lasting approximately 60 minutes.

If you are interested in hearing more or taking part, please visit <http://bit.ly/atindementia> or contact Vimal Sriram at vimal.sriram@dph.ox.ac.uk

A study of cognitive bias in older adults with depression (BOLD study)

We are researching the causes of depression in older people by comparing people experiencing depression with **those who have never had depression.**

The study will involve carrying out simple tasks using a computer which measures negative thoughts, and to complete some questionnaires. This will take about two hours in total.

We are looking for people:

- * **Aged 60 and over**
- * **With no mental health difficulties.**

You will be paid **£15/hour** for your time, and reimbursed **£20** for travel expenses (£10 for each journey to and from the study site).

If you are interested and would like further information about the study please contact Dr Philip Wilkinson (philip.wilkinson@psych.ox.ac.uk or 01865 902400).

London - City & East NHS Rec ref. no. 16/LO/1184

Upcoming Events

Therapies for people with dementia

Where: The McInnes Room, The Warneford Hospital

When: Wednesday 12th December, 12.00 – 16.00 pm

A Workshop affiliated to the Centre for Values-based Practice in Health and Social Care St Catherine's College, Oxford University. There is a £20 fee per place, which is payable in advance. This includes a free, complimentary copy of Wendy McNay's, Sweet memories: dementia poems. Co-facilitated by Roz Austin.



Roz & Wendy on Wendy's 94th birthday

To book a place please click on this link: <https://www.eventbrite.co.uk/e/therapies-for-people-with-dementia-tickets-46880931127>

Health walks

Where and When: Multiple locations across Oxford and dates (see website)

Explore the great outdoors, meet new people and have fun—all while building your fitness! This Autumn, why not try out one of these health walks around Oxford, guided by experience walk leaders. These walks are open to all experiences and no registration is required. To find out more, visit the website: https://www.oxford.gov.uk/info/20278/sports_and_physical_activities/725/health_walks_in_oxford

Singing for the Brain

Where: Rivinghurst Community Centre

When: Fortnightly - 2nd and 4th Week, 2pm—3.30pm

Organised by Alzheimer's Society, Singing for the Brain is a great way to meet other carers and individuals with dementia, as well as practice singing songs—old and new! See the website for further details: <https://livewell.oxfordshire.gov.uk/Services/2030/Singing-for-the-Brai>

Oxford Dementia & Ageing Research (OxDARE),

Department of Psychiatry, Warneford Hospital, Oxford, OX3 7JX

Website: OxDARE.ox.ac.uk

Contact us: OxDARE@psych.ox.ac.uk

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