Project title: Stress hormones, brain plasticity and the aging brain

Studentship Code: FST14

One of the processes underlying age-related deterioration in cognitive function is reduced capacity of the brain to adapt and learn i.e. brain plasticity. This study will explore the role of the ‘stress hormone’ cortisol in these processes. Evidence suggests changes in daily patterns of cortisol secretion are associated with aging and impaired cognition, especially executive function (EF: e.g. problem solving/mental flexibility). This will be the first study to measure carefully daily patterns of cortisol, brain plasticity and EF. Cortisol will be measured from repeated saliva samples collected over several days in healthy older adults. On the afternoon of each study day they will be tested on EF and an index of brain plasticity, using transcranial magnetic stimulation (TMS). Data will pinpoint a modifiable target (i.e. cortisol secretion) for development of interventions to limit decline in plasticity and cognition in older adults. Throughout the PhD, the student will be supervised by experts in the area and will learn a wide range of experimental and analytical skills, including, collection and analysis of salivary cortisol, use of TMS, actigraphy, estimates of cognitive function using CANTAB and multilevel modelling, equipping them with varying laboratory skills. The student will participate in the University Graduate School and Faculty Doctoral Research Development Programme and will be supported to showcase their research at national/international conferences as well as publish their work in high impact peer-reviewed journals. Over the course of the PhD, the student will gain transferable skills, such as, the management of projects and budgets along with presentation and scientific writing skills, which will aid their employability skills and career progression upon completion of the PhD. Ethical approval has been granted for the study.

Related publications


Contact

Informal project enquiries to Dr Nina Smyth (smytn@westminster.ac.uk) and general enquiries to Dr Stephen Getting (s.getting@westminster.ac.uk) or Professor Taj Keshavarz (t.keshavarz@westminster.ac.uk).

For details of how to apply

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