

Investigating cognitive function in diabetes and healthy samples using electroencephalography (EEG) and psychometric assessment: a comparative study.

George Kalatzis^{1,2,3}, Ty Lees^{1,2,3}, Najah Nassif^{2,3}, Chris Zaslowski³, Sara Lal^{1,2,3}

Neuroscience Research Unit¹, Chronic Disease Solutions Team², School of Life Sciences³, University of Technology, Sydney (UTS)

Accelerated cognitive decline is a common yet under-recognised complication of diabetes mellitus that is now attracting appreciable discussion in the neurocognitive literature. While previous studies have consistently reported compelling evidence that diabetes mellitus causes deterioration in cognitive function, particularly in psychomotor efficiency and attention, exact cognitive domains affected along with the magnitude of cognitive deterioration in each cognitive modality currently remain unclear. In the present ongoing comparative study cognitive function is being assessed in healthy controls and patients with diabetes mellitus (Type 1 and Type 2) using established neurophysiological and psychometric measures, electroencephalography (EEG) and psychometric assessment. Preliminary electrophysiological and descriptive psychometric data reveal subtle differences in cognitive function between the examined populations, with diabetes mellitus patients demonstrating poorer overall cognitive function. Data obtained could highlight the brain regions vulnerable to early diabetes-related cognitive dysfunction and could identify electrophysiological biomarkers of cognitive function specific to diabetes mellitus.