**Supplementary Material**

**Maintain Your Brain: Protocol of a 3-Year Randomized Controlled Trial of a Personalized Multi-Modal Digital Health Intervention to Prevent Cognitive Decline Among Community Dwelling 55 to 77 Year Olds**

**Supplementary Material 1. Detailed process for sequencing of modules**

 The recruitment period for MYB can be up to the end of Quarter 1 (i.e., month 3) for each iteration of MYB. To account for people completing baseline activities at different times and therefore entering the trial at different times during recruitment, participants could begin module activities at the start of Quarter 1 (modules start in month 1 and go up to month 12), or the start of Quarter 2 (modules start in month 3 and go up to month 15). If further recruitment was required, a new ‘iteration’ of the online system would be created to allow for another cycle of recruitment, continuing for as long as needed until the sample size was reached. However, based on our planned invitations we expect that recruitment will take approximately 3-6 months.

 Participants can be eligible for between 1 to 4 modules. These modules are delivered in a pseudo-random order based on a set of rules built into the MYB digital platform. Participant modules are randomized across four quarters (12 weeks). Following this, to avoid participants having no activities in the first quarter of the trial, modules are then shifted to ensure that blank modules appear later in the trial. For example, if a participant only had two modules their order would be set randomly and then shuffled until a module was set in Quarter 1. MYB can also accommodate participants who start the trial late. This is achieved by allowing modules to be shifted into months 12-15 so that participants always receive all the modules they are eligible for.