FINGER - a multidomain two-year randomized controlled trial to prevent cognitive impairment

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\textbf{Rationale:} The Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) is a proof-of-concept randomised controlled trial for a multidomain approach to prevent cognitive decline in at-risk elderly from the general population.

\textbf{Methods:} FINGER included 1260 participants, aged 60-77 years, recruited from previous national surveys. Inclusion criteria were CAIDE Dementia Risk Score >6 points, and cognition at mean level or slightly lower than expected for age. Participants were randomised to a 2-year multidomain intervention (diet, exercise, cognitive training, vascular risk monitoring), or a control group (general health advice). Primary outcome was change in cognition (neuropsychological test battery, NTB z-score). Analysis was by modified intention-to-treat (participants with at least one post-baseline observation). This trial is registered as NCT01041989.

\textbf{Results:} 2654 individuals were screened, and 1260 were randomised to the intervention (n=631) or control (n=629) group. 591 participants (intervention) and 599 (control) had at least one post-baseline assessment. Mean change (standard error) in NTB total z-score at 2 years was 0.20 (0.01) in intervention and 0.16 (0.01) in control group. Between-groups difference in change of NTB total score per year was 0.022 (95\%CI 0.002-0.042), \(p=0.030\). A significant effect was also observed for other cognitive outcomes (executive functioning, processing speed, abbreviated memory score), and risk of cognitive decline and other secondary outcomes (BMI, dietary habits, physical activity, quality of life). Dropout rate was 12.1\%, and adverse events rare.

\textbf{Conclusions:} FINGER is the first large, long-term RCT showing that a multidomain intervention may improve/maintain cognitive functioning in at-risk elderly from the general population.

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