

Additional File 3

Physical function measures record during the quasi-experimental study

Extremity and gait function

The SPPB was used to examine extremity and gait function through markers of gait speed, mobility and static balance¹. A 4-metre walk test assessed gait speed. Specifically, participants were asked to walk comfortably over 4-metres, where a short duration to complete the test represents greater function. A sit-stand test examined mobility, where participants were asked to stand from a chair without assistance. If this phase of the test was completed, participants were requested to complete a further five sit-stand movements in the quickest time possible. Static balance was measured through three hierarchical balance postures (normal stance, semi-tandem, tandem) (held for 10 seconds). Each component of the battery is scored (0 to 4) and calculated as a total score (0 to 12), with higher scores indicating greater extremity function. The SPPB has demonstrated an internal consistency score of .76 with older adults¹.

Additionally, the TUG² was used to understand functional movements. Following familiarization, the TUG required participants to stand from a standard chair' (approximately 46 cm), walk at a safe and comfortable pace to a line on the floor three meters away, turn around and return to the chair and sit down again. Time is recorded for the duration of the test, with lower durations reflecting greater physical function. Times above 13.5 seconds are a clinical threshold for falls and frailty risk². The TUG holds excellent intra- and inter-rater, and re-test reliability in healthy adults and primary care patients³.

Muscular Strength

Grip strength was measured with a hand grip dynamometer (Takei; Digital 5401) and provided an indicator of muscular strength. Good evidence has indicated grip strength to be a predictor of overall muscular strength, physical function, frailty and health⁴. Following the standardized protocol⁴, the dynamometer was adjusted to ensure the middle phalanx was securely gripping the inner handle. Whilst standing, participants held the dynamometer in their dominant hand with the dominant arm parallel to the body and held their grip maximally. Measures were repeated three times with the greatest score used during analysis (measured in kg).

Physical fitness

Predictions of physical fitness were provided by the 6MWT⁵. Following instruction to cover the greatest distance possible at a normal walking pace (i.e., whilst able to talk and without running), participants walked between two lines (12-metres apart) for a period of six-minutes. During the test the researcher walked alongside the participant (to ensure compliance with the protocol and to time the test). During the test participants were permitted to stop and rest as required. Total distance was

recorded, with greater distances reflecting greater functional physical fitness. The 6MWT is a valid and reliable sub-maximal fitness test for older adults where feasibility, frailty and pre-existing complications challenge the adoption of absolute objective testing⁵.

References

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