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Preserving community mobility in vulnerable older people

Fresh evidence confirms the benefits of structured physical activity

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Preserving independent mobility is central to maintaining a good quality of life, including retention of many activities, such as walking to a bus stop or around a neighborhood, that older adults need to stay fully engaged in their communities.[1] Loss of mobility in community living people is associated with multiple adverse outcomes, including worsening disability and morbidity, increases in healthcare utilization and costs, admission to residential care, and death.[2-6]

The linked study by Bernabei and colleagues (doi:10.1136/bmj-2021-068788) provides additional evidence that a structured moderate intensity physical activity programme can preserve mobility, defined as the ability to independently walk 400 m in less than 15 minutes, in community living older adults (≥70 years).[7] This evidence comes from a well designed and rigorously executed randomized controlled trial (SPRINTT, the Sarcopenia and Physical fRailty IN older people: multi-componenT Treatment strategies) that was conducted at 16 clinical sites across 11 European countries. The authors found that the multicomponent intervention, which included personalized nutritional counseling in addition to aerobic (walking), strength, flexibility, and balance exercises, reduced the occurrence of mobility disability over the course of three years by 22% among community living older people with a condition that the authors call "physical frailty and sarcopenia." These findings are consistent with those from an earlier US based multicenter trial, the LIFE Study,[8] that evaluated physical activity as the sole intervention among sedentary older people with functional limitations.

Physical frailty and sarcopenia was operationalised as the co-occurrence of functional limitations, defined as a short physical performance battery (SPPB) score of 3 to 9 (as in the LIFE Study) and low appendicular lean mass, assessed by dual energy x ray absorptiometry (DEXA). Although this definition is rigorous and appropriate for an efficacy trial, its clinical utility is uncertain for several reasons. First, the SPPB, which includes a short distance walk, five chair stands, and a set of balance maneuvers, requires considerable staff training and up to 15 minutes to safely and effectively complete. Second, DEXA scans are not readily available in many clinical settings, and they add expense and radiation exposure. Third, operationalizing sarcopenia on the basis of muscle mass, rather than muscle strength, has lost favor based on mounting evidence from epidemiologic studies and clinical trials.[9]

The SPRINTT trial was not designed to determine whether nutritional counseling added any benefit to structured physical activity, which had previously been shown to be effective in the LIFE Study.[8] The reduction in mobility disability in SPRINTT was generally comparable to that in the LIFE Study, suggesting that nutritional counseling may offer little additional benefit. This is important since the nutritional component of the SPRINTT intervention adds costs and complexity. Previous research, dating back to the seminal trial by Fiatarone and colleagues published in 1994, has shown that the value of physical activity is much greater than that of nutrition for improving functional outcomes in vulnerable older people.[10]

The SPRINTT intervention was not effective in reducing mobility disability in older participants with relatively mild functional limitations, as denoted by an SPPB score of 8 or 9—a finding that is generally consistent with that in the LIFE Study.[8] Among participants with SPPB scores less than 8, the rates of mobility disability in the control groups were comparable between SPRINTT (51.5%, mean follow-up 2.2 years) and LIFE (46.8%, mean follow-up 2.6 years), suggesting that the additional low appendicular lean mass requirement in SPRINTT did not add much prognostic information. Whether a muscle strength requirement would add useful prognostic information is uncertain.

Translating findings from even the best designed efficacy trials to clinical practice can be challenging for several reasons, including eligibility criteria that are difficult to implement and interventions that are overly complex and expensive. Collectively, the findings from the SPRINTT and LIFE trials provide compelling evidence that mobility in the community can be preserved among vulnerable older people through structured physical activity, with walking as the primary modality.

To enhance clinical feasibility, slow gait speed (<0.8 m/s) rather than the complete SPPB could be used to identify older people who are at high risk of losing independent mobility.[11] Ideally, these individuals could then be referred to structured physical activity programmes in the community. In the US, many Medicare plans offer SilverSneakers, a free health and fitness programme where older people can exercise at a fitness center, such as a gym or community center, or at home, or both by accessing on-demand how-to videos, classes, and workouts.[12] The cost effectiveness of the LIFE structured physical activity programme was found to be comparable to that of many commonly recommended medical treatments.[13] Confirming these findings in SPRINTT would further strengthen the case for developing, implementing, and supporting community based physical activity programmes to preserve independent mobility among vulnerable older people.

Competing interests: The BMJ has judged that there are no disqualifying financial ties to commercial companies.

The author declares the following other interests: I was a co-investigator and the site principal investigator at Yale for the LIFE Study.

Further details of The BMJ policy on financial interests is here: https://www.bmj.com/sites/default/files/attachments/resources/2016/03/16-current-bmj-education-coi-form.pdf.

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