Supplementary information

Power calculation

The power calculation was based on studies of a British birth cohort of comparable age and size (2797 individuals aged 53 years)[1]. See study protocol for details[2]. Kuh et al. measured time to complete 10 chair-rises and found a difference of 0.3 sec^{-1} (SD 3.3) between manual and non-manual workers. A slightly larger difference of 0.5 sec^{-1} was thought clinically relevant, which is to say that manual and non-manual workers spent 22 and 20 seconds respectively to perform 10 chair-rises. For the purposes of our study, this equates to 13.6 versus 15 chair-rises/30 seconds. We assumed that 20% of the population has a history of physical exposures during working life, and we aimed for a power of 90% (beta=0.1) with a significance level of 5% (alpha= 0.05). To detect a difference of 0.5 sec^{-1}, n was calculated to be 2,870. The power calculations were performed in SAS version 9.2 PROC POWER.

[1] Kuh D, Bassey E, Butterworth S, et al. Grip strength, postural control, and functional leg power in a representative cohort of British men and women: associations with physical activity, health status, and socioeconomic conditions. J Gerontol A Biol Sci Med Sci 2005;60:224–31.

[2] Møller A, Mortensen OS, Reventlow S, et al. Lifetime occupational physical activity and musculoskeletal aging in middle-aged men and women in denmark: retrospective cohort study protocol and methods. JMIR Res Protoc 2012;1:e7.