Appendix 1 – Methodology

In the late 1990s, 3225 men and women aged 59–72 years were recruited to the Hertfordshire Cohort Study (HCS) which has been described in detail previously\textsuperscript{28}. In brief, the HCS participants participated in a baseline study which included a home interview at which trained nurses collected information on medical and social history. The latter included: age left full time education; own current or most recent full time occupation; husband’s current or most recent full time occupation for ever married women; and housing tenure (three categories: owned/mortgaged; rented; other) and car availability for the household (three categories: none; one; two; three or more) as markers of material deprivation. Men and women who were willing, subsequently attended a clinic for a number of investigations including a 2 hour fasted oral glucose tolerance test, measurement of blood pressure, an electrocardiogram (ECG) and a clinical examination for hand osteoarthritis. A subgroup of 498 men and 468 women who were resident in East Hertfordshire also underwent dual x-ray absorptiometry (DXA) scans for assessment of bone mineral content and density.

Study group

In 2004-5, a follow-up study was performed in East Hertfordshire. The family doctors of participants in the baseline survey were contacted to ask if their patients could be approached again. Of the original 498 men and 468 women who had undergone a DXA scan, 8 had died, 6 had moved away, GP permission could not be obtained to approach 4 people, 47 were no longer on family doctor lists, and 17 were unavailable. Hence, 437 men and 447 women were invited to take part in the follow-up study. Of these, 322 men (74\%) and 320 women (72\%) agreed to attend a follow-up clinic.
At the follow-up clinic visit, medical and social histories were updated. Information was collected on frailty status using the Fried criteria. Self-assessed health related quality of life was ascertained using the short-form 36 (SF-36) questionnaire. Hand grip strength was measured three times on each side using a Jamar handgrip dynamometer and participants completed a timed 3 metre walk. Intra- and inter-observer studies were carried out during the fieldwork to standardise measurement technique. The baseline and follow-up studies had ethical approval from the Hertfordshire and Bedfordshire Local Research Ethics Committee and all participants gave written informed consent.

**Derived measures**

Registrar General’s social class was coded from the 1990 OPCS Standard Occupational Classification unit group for occupation using computer assisted standard occupational coding. Current social class was identified on the basis of own current or most recent full-time occupation for men and never-married women, and from the husband’s occupation for ever-married women.30