Background: Inflammatory burden has been associated with a range of adverse musculoskeletal outcomes in later life, including accelerated OA and sarcopenia. Here we report the association between markers of inflammation and bone health among unselected individuals recruited to a population-based cohort study.

Methods: The study population was taken from the Hertfordshire Cohort Study, who were born in Hertfordshire between 1931 and 1939 and still lived there 70 years later. At baseline, a questionnaire was administered detailing lifestyle and demographic factors and a detailed comorbidity history was taken. At a clinic visit, fasting blood samples were taken and analyzed for IL-6 and high sensitivity CRP (hsCRP). BMD measurements were taken at the lumbar spine and femoral neck using a QDR 4500 densitometer (Hologic, Marlborough, MA, USA). There were 314 men and 288 women for whom we had BMD measurements and IL-6 and/or hsCRP.

Results: The mean age was 65.0 years (s.o. 2.6) in men and 66.2 (s.o. 2.6) in women. The geometric mean BMI was 26.8 (s.o. 1.1) and 26.9 (s.o. 1.2) in men and women, respectively. The geometric mean hsCRP was 1.72 mg/l (s.o. 2.9) in men and 1.85 (s.o. 3.0) in women; an IL-6 >1.5 pg/l was observed in 88 (28.4%) men and 58 (20.5%) women. The hsCRP z-score was an explanatory variable for lumbar spine BMD in men but not women, after adjustment for age, BMI, co-morbidities, social class, smoking status, alcohol consumption, physical activity and dietary calcium intake [regression coefficient −0.14 (95% CI −0.26, −0.02), P = 0.03]. Relationships at the femoral neck were also apparent but slightly weaker in men only [regression coefficient −0.11 (95% CI −0.23, 0.00), P = 0.06] after the same adjustments. A baseline IL-6 >1.5 pg/l was also associated with reduced lumbar spine BMD in men but not women [regression coefficient −0.31 (95% CI −0.59, −0.04), P = 0.03] after adjustments.

Conclusion: We observed associations between inflammatory markers within the normal range and bone health in men but not women in later life. Further studies are now warranted.

Disclosure statement: The authors have declared no conflicts of interest.