This study aimed to establish if bone turnover shows significant seasonal variation, and if this varies by ethnicity. The D-FINES study investigated 373 Surrey Caucasian (C) and Asian (A) women every season over a 12 month period (2006-2007). A random sub-sample of premenopausal C (n 18) and postmenopausal C (n 17); premenopausal A (n 13) and postmenopausal A (n 17) with blood samples for all seasons were selected. Serum C-telopeptide (sCTX) was determined by electrochemiluminescent immunoassay (Roche Diagnostics).

A mixed between-within subjects ANOVA showed there was no significant main effect of season on sCTX F(3,59.0)=1.467, p=0.233. However, there was a significant between subjects effect of group F(3,61)=3.099, p=0.033, with post hoc tests showing significant differences between the two C groups (p=0.007) and postmenopausal A and premenopausal C groups (p=0.042) but no significant differences between the other groups. Last, there was no significant interaction between season and group F(9,143.741)=0.540, p=0.843. It appears that it is menopausal status, not ethnicity which is likely the main reason for the group differences. Indeed, there was no significant difference between ethnic groups of the same menopausal status. Overall, no evidence for a seasonal variation in bone resorption was found here but there was evidence for a menopausal difference in bone resorption.