

## Suggested Answer: Paper Critique, bone loss

1. *What do they mean by within the coefficient of variation (0.3%) for replicate measurements?* They mean that the standard deviation of repeated measurements on the same subject will be 0.3% of that subject's true value, the average value of all the possible measurements for that subject. The observed mean percentage change in bone density for all the 36 women in the study was less than this.
2. *Do you think this statement from the discussion makes sense in terms of statistical significance?* The statement clearly makes no sense in terms of statistical significance, because the P value is recorded as "<0.04", less than the conventional 0.05 cut-off. They should give the actual P value. However, we would usually regard a P value of <0.04 as statistically significant. It is, after all, less than 0.05. A change **in an individual** which is less than the CV or  $s_w$  would be quite consistent with no real change, but this is the mean change in the sample. The measurement error has nothing to do with it.
3. *Do you think this statement from the discussion makes sense in terms of clinical significance?* It is possible for a difference to be statistically significant but not important or clinically significant. However, such a judgement should be based on the actual magnitude of the difference, not on the relation of the difference to the measurement error.