Interobserver and intraobserver variability of glenoid track measurements

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BACKGROUND
A method of assessing combined glenoid and humeral bone loss in traumatic shoulder instability with an associated treatment protocol was recently published. The aim of this study was to investigate its reliability and reproducibility.

METHODS
Seventy-one patients with unilateral anteroinferior shoulder instability underwent computed tomography scans, from which 3-dimensional images were derived. En face views of both glenoid fossae and with 3 views of the humeral head were provided to 4 assessors to determine interobserver reliability. From these measurements, the shoulder was assigned a treatment classification. Two observers repeated their assessments 1 month later to determine intraobserver reliability. For each measurement, the mean coefficient of variability was calculated.

RESULTS
Assessment of glenoid bone loss showed good interobserver (4 observers agreeing in 90.1% of cases) and also good intraobserver agreement (94% and 96%). There was a poor level of interobserver reliability regarding the on-track or off-track classification (72%). Intraobserver reliability for this measurement was less variable (90% and 80%). There was a poor level of agreement between observers (65%) regarding treatment classification. The coefficient of variability for the Hill-Sachs lesion measured 19.2%, indicating a high level of variability for this measurement compared with <4% for all other measures.

CONCLUSION
Linear bone loss on the glenoid can be measured reliably and reproducibly; however, evaluation of Hill-Sachs lesions demonstrates a high level of variability, and poor interobserver reliability.