Objective breast symmetry evaluation using 3-D surface imaging.

This study develops an objective breast symmetry evaluation using 3-D surface imaging (Konica-Minolta V910® scanner) by superimposing the mirrored left breast over the right and objectively determining the mean 3-D contour difference between the 2 breast surfaces. 3 observers analyzed the evaluation protocol precision using 2 dummy models (n = 60), 10 test subjects (n = 300), clinically tested it on 30 patients (n = 900) and compared it to established 2-D measurements on 23 breast reconstructive patients using the BCCT.core software (n = 690). Mean 3-D evaluation precision, expressed as the coefficient of variation (VC), was 3.54 ± 0.18 for all human subjects without significant intra- and inter-observer differences (p > 0.05). The 3-D breast symmetry evaluation is observer independent, significantly more precise (p < 0.001) than the BCCT.core software (VC = 6.92 ± 0.88) and may play a part in an objective surgical outcome analysis after incorporation into clinical practice.