3D MODEL FOR AESTHETIC OBJECTIVE EVALUATION AFTER BREAST CANCER SURGERY USING INFRARED LASER PROJECTOR

André T. Magalhães, Hélder P. Oliveira, João Soares, António José Moura, Jaime S. Cardoso, Maria João Cardoso

Hospital da Trindade, Porto, Portugal
Fundação Champalimaud, Lisboa, Portugal
Faculdade de Medicina da Universidade do Porto, Portugal
INESC Porto, Faculdade de Engenharia, Universidade do Porto, Portugal

Aims: Recently some groups have been using 3D methodology but at higher costs and not yet generally accepted. Our objective was to evaluate the value of a less expensive and user friendly tool using infrared laser projector to obtain 3D images.

Methods: 42 patients after mastectomy and immediate reconstruction accepted to enter the study. 3D measures were captured by Kinect® (Xbox®). It has a depth sensor based in infrared laser projector and was possible to obtain a disparity map in gray intensity that represented depth information; this was converted in metric values to obtain 3D measures; after capturing these measures from both breasts, a ratio was calculated to estimate volume differences. Another ratio of the distance of the medial projection of the nipple to the sternum (taken manually with 2 rulers) in both breasts was obtained. Finally, we used a robust error measure (mean squared error) to compare the 2 ratios – manual and 3D [zero means no error].

Results: The error between the two measures was 0,056 which can be considered good.

Conclusions: Although results are only preliminary we believe there is potential for the use of this, low cost and user friendly, infrared laser projector, to obtain 3D images.