For the subjective assessment of workload, Borg's Rating of Perceived Exertion (RPE) scale is a global measure of perceived workload during anaesthesia induction, maintenance and emergence in the real workplace. In the present study, validity and reliability of the RPE scale were analysed for a full-scale simulator environment using scenarios of induction of general anaesthesia with and without critical incidents. Seventeen anaesthetists (professional experience 1-30 years) participated in this randomised cross-over trial. Each participant rated their workload using the RPE scale after three different simulator sessions. No critical incident was simulated in the 1st session. In a randomised order, workload was increased by simulation of a critical incident in the 2nd or 3rd session. For the analysis of validity and reliability, univariate and multivariate regression analysis and the concordance correlation coefficient were used. RPE scores were significantly increased after managing a simulated critical incident [13.0, 95% confidence interval (CI) 11.6-14.5] compared to normal anaesthesia induction (9.4, 95% CI 8.2-10.6; P < 0.001). Reliability was moderate (concordance correlation coefficient = 0.55; 95% CI 0.13-0.80) for uneventful sessions. RPE scores were significantly increased after critical incidents during simulated anaesthesia induction and indicate good construct validity. Reliability may
be impaired by the fact that the first session was announced to be without a critical incident. The RPE scale is easy to administer and a valid tool for subjective workload assessment in simulator settings. Reliability is moderate.