OBJECTIVES: This study analyzed the effect of a standard and a modified checkout workstation during a simulated task on trunk postures of a supermarket checkout operator. METHODS: Eight participants performed a task involving grasping, scanning and depositing products, while 3D images of the trunk were collected. RESULTS: A number of kinematic changes were observed in trunk posture. A greater anterior flexion (3.0±1.2º) and lateral bending during grasping (7.1±1.4º) were found in the standard checkout workstation when compared to the modified model (p<0.05). Other variables did not show significant differences (p>0.05). DISCUSSION: The modified checkout workstation provided less lateral bending of the trunk to grasp products (8.1º ± 2.8; p<0.05), which was considered an advantage with respect to the standard model. Changes in the sagittal and transversal planes were not observed (p>0.05), irrespective of the checkout workstations (p>0.05). The modified checkout workstation successfully reduced risk of injury in some aspects, particularly the problems associated with lateral bending of the trunk. Other studies are required to test whether such potential benefits are obtained on a daily basis. CONCLUSIONS: Supermarket checkout operators may be at high risk of occupational injury due to different workstation demands. Modifications to checkout workstation design are an attractive possibility to reduce postural stress and fatigue in checkout operators. Longitudinal studies are required to test whether changes observed in the present study are sustained in the long term.

Keywords
supermarket checkout operators; supermarket checkout workstation; checkout workstation design; posture.